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PROBLEMS IN THE CONTROL OF DIPHTHERIA *

JAMES A. HAYNE, M.D.

COLUMBIA, S. C.

In discussing problems in the control of diphtheria, I do not feel that I am capable of giving any definite answers to the queries that occur when one studies diphtheria, its incidence and its mortality, but I hope that this paper may bring out in its discussion some valuable information. Diphtheria, like all other infectious diseases, brings to the mind of the practitioner four questions:

1. What is the cause of the disease?
2. Is there any specific treatment?
3. Is there any way of rendering immune those persons who are exposed to it?
4. Is there any way of knowing whether a person exposed to the disease will contract it or not?

CAUSE OF DIPHTHERIA

To all of these questions we can give a definite and precise answer. To the first, the disease is caused by a bacillus first described in 1883-1884 by Klebs and Loeffler. The morphology of this bacillus is well known, and the fact that when grown on suitable culture mediums it will produce a toxin. These facts have been brought out on investigation by Park, Williams and Theobald Smith. The disease has been known since the second century, and was first described by Aretaeus as the malum aegyptiacum. It was epidemic in the sixteenth and seventeenth centuries in Holland, Spain, Italy and France, as well as in England, but it was not until 1821 that Brettoneau of Tours, in a treatise on the subject before the French Academy, gave the name la diphthérite. Diphtheria for a long time was thought to be due to defective drains or sewer gas. This we now know to be not the exciting cause; but probably insanitary conditions, such as polluted water supply and improper sewerage and drainage, so lowered the health of persons exposed to the disease that diphtheria resulted when the individual came in contact with those having the diphtheria bacillus in their throats. Certain animals are susceptible to diphtheria—cats and cows. Very recently the bacillus of diphtheria has been isolated from chickens suffering with roup. Other animals, such as turkeys and birds, are known to be infected with the disease. Most domestic animals, however, appear to be immune. Children are more susceptible than adults. Membranous croup was for a long time not regarded as the same as diphtheria, but now medical men make no distinction between laryngeal diphtheria and ordinary diphtheria, except that the mortality is greater in laryngeal diphtheria. Diphtheria is found in all European and American countries. There is little diphtheria in India and Japan. Diphtheria becomes at times pandemic, apparently at periods of about twenty years.

SPECIFIC TREATMENT

The second question can also be answered affirmatively. Diphtheria antitoxin was discovered by Behring and Kitasato about 1890, but it was not until 1895 that Park and Williams succeeded in producing from culture No. 8 a far more powerful toxin than had ever been previously obtained. The culture still is used throughout the world for producing antitoxin. It came into general use about 1900, and in Chart 1, the decline in mortality in the registration area through the use of diphtheria antitoxin is clearly shown. Chart 2 shows the per capita cost of the use of diphtheria antitoxin in South Carolina. This shows that in 1915 the per capita cost was 55 mills. In 1919, the year after the war, when everything reached its high cost, the per capita cost was about 88 mills. The present cost is about 82 mills per capita. South Carolina, in 1910, was the first state to furnish diphtheria antitoxin free to its citizens, black and white.

Chart 3 shows the cost of diphtheria antitoxin per case. This varies from about $4.50 to more than $8, in 1918. It is now costing about $5 per case.

Chart 4 shows the amount of units of diphtheria antitoxin used per case. In 1915 the average amount used was 12,000 units. The amount used rose rapidly until 1920, when 32,000 units was used per case. This dropped in 1921 to 20,000 units, and in 1922 practically the same amount was used.

CONTROL OF DIPHTHERIA

As to results in South Carolina, Chart 1 shows that the average death rate in 1920 in the registration area was over 16 per thousand, whereas in South Carolina the average death rate was about 13 per thousand. This we attribute largely to the free distribution of diphtheria antitoxin.

Chart 6 compares the mortality rate in Kentucky, Massachusetts, California, Washington, Kansas and South Carolina. These states were chosen, not on account of the fact that all of them have a higher mortality than South Carolina, except Washington, but because they represent geographic areas of the United States; Kentucky, the highest, representing the East Central states; Massachusetts next, representing the New England states; Kansas, a Middle Western state; California, an extreme Western coastal state, and Washington, an extreme Western north coastal state. The mortality rates shown give Washington the lowest

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

death rate, South Carolina the next lowest, and Massachusetts the highest. In Massachusetts probably the highest degree of intelligent effort has been concentrated on the problem of the reduction of the diphtheria mortality rate. We can only believe that the reason of the low mortality rate in South Carolina is due to our plan of universal distribution of diphtheria antitoxin.

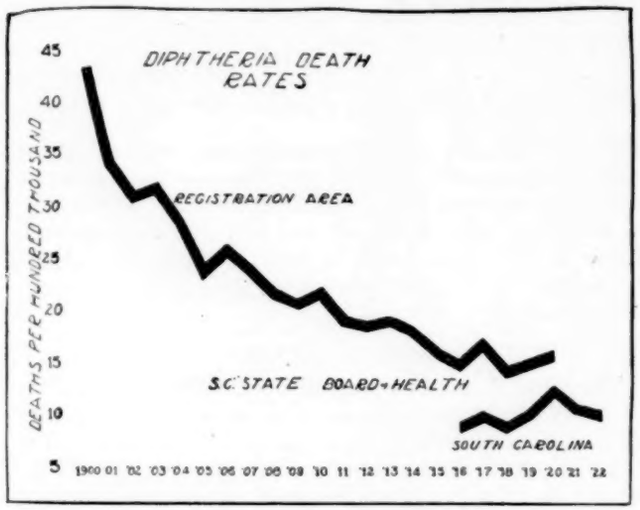

Chart 1.—Death rate from diphtheria.

Answering the third query in the affirmative brings us to the subject of the control of diphtheria. Although we have advanced greatly in our knowledge of the treatment of the disease and have succeeded in reducing the mortality tremendously, for it was five times greater in 1900 than it is at the present time, yet our morbidity rate still remains extremely high. Quarantine, placarding and isolation of the patient has done but little toward preventing the spread of the disease. The location of the carrier is an extremely difficult problem, for it has been proved that the bacillus persist almost indefinitely in the air passages in certain cases, and in a large proportion of cases it persists for several weeks after convalescence. Kelley [1] has brought out the facts so well that his conclusions are justified:

> Practically all of these secondary cases could have been avoided if at the time of institution of treatment all contacts had been immunized.
>
> The problem is of sufficient size and importance to warrant special attention.
>
> Some steps should be taken by local health authorities with physicians to emphasize the need of passive immunization.

We have, therefore, come to the conclusion that we should produce passive immunity in all house contacts by the injection of a small dose, from 500 to 1,000 units, of antitoxin. We then should stimulate later on active immunity by the use of toxin-antitoxin. As the production of active immunity in the human body by injection of toxin antitoxin takes from one to six months, we cannot let this take the place of passive immunity, which is rapidly produced by the injection of antitoxin. We agree with Bauer [2] in his conclusion that, since our regular records show a dead level with our present condition of prevention, it behooves us to make this clearly demonstrated method, viz., the Schick test and the active immunization of the susceptible, a universal practice, especially among our young children, so that they will not succumb to this loathsome malady and that our health reports will show a clean sheet in the diphtheria morbidity column. The success demonstrated by Park in the control of diphtheria in New York City by the administration of toxin-antitoxin is convincing, and in South Carolina we are endeavoring to immunize as many children as possible. In Charleston County, exclusive of the city of Charleston, 3,727 doses were given during the last fifteen months; 831 white children under 10 years of age and 286 colored children, making a total of 1,117 children under 10 years of age, received three full immunizing doses. Of these numbers, 107 (white children) were of preschool age ranging from 1 to 6.

In addition to the foregoing, thirty-nine white and 120 colored children received two immunizing doses, as they failed to receive the full set for various reasons: sickness, absence from school, refusal by parents, and in a few instances, children having moved away.

In addition to these, twenty-eight white and thirty colored children received only one dose, as they failed to complete their series for the same reasons mentioned above.

We have not yet discovered a case of diphtheria in any of the children that had these doses of toxin-antitoxin, and the two deaths from diphtheria in Charleston County reported during the last year were among children whose parents refused to give their consent for the immunizing treatment.

We offered the immunizing treatment through a circular letter addressed to the parent of each school child, and sent in care of the child. The immunizing treatments were given only to such children as had obtained the consent of their parents for the immunization.

No preliminary Schick test was attempted on any of the children, nor did we do a follow-up Schick test.

The reactions following the administration of toxin-antitoxin were, as a rule, very mild, and only a few

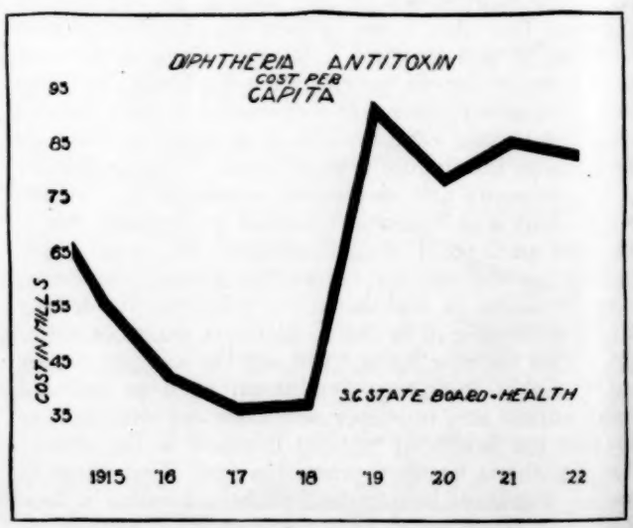

Chart 2.—Per capita cost of antitoxin.

children (mostly the older children who were near the age limit) developed a temperature around 102 or 103 the night following the administration.

No evidence of anaphylaxis was noted, in spite of the fact that a few of the children immunized had previously taken antidiphtheria or other antitoxins. The local reaction consisted of a reddened zone of inflammation surrounding the point of inoculation, which

1. Kelley, Eugene: Preventable Infection of Diphtheria, read before the Surgeon-General's Conference, May 17, 1923.
2. Bauer, E. L.: Pennsylvania M. J. 24: 471 (April) 1921.

lasted from twelve to eighteen hours. In two cases, the inoculation was followed by a condition later diagnosed by their physicians as erysipelas, which promptly responded to treatment.

For the total state of South Carolina so far there have been 2,735 children inoculated, and we propose to wage an intensive campaign to have as many as possible inoculated.

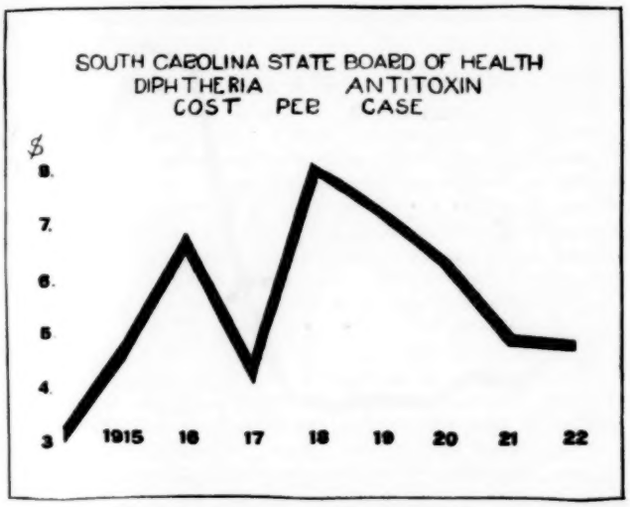

Chart 3.—Cost of antitoxin per case.

THE SCHICK TEST

In regard to the fourth query, Is there any way of knowing whether a person exposed to the disease will contract it or not? again we can answer in the affirmative, thus showing that we have a thorough scientific knowledge of the cause, the treatment, the method of rendering immune and a way of knowing whether a person exposed to the disease will contract it or not. The answer to the fourth question is the Schick test. This test is made by injecting intracutaneously on the flexor surface of the forearm 0.2 c.c. of the dilution by means of a sterile syringe with a fine steel or platinum needle. If positive, there will be a slight trace of redness, which will appear slowly on the forearm at the site of the injection of the unheated toxin in from twenty-four to thirty-six hours. The reaction reaches its height on the fourth day and disappears gradually, leaving a definitely circumscribed scaling area which may persist for weeks. At its height, the reaction shows a circumscribed area of redness and slight infiltration measuring from 1 to 2 cm. in diameter. The degree of redness varies in various individuals, but when typical always indicates susceptibility to diphtheria (Park).

By this test we are able definitely to state whether a person exposed to the disease will contract it or not.

CURVE OF INCIDENCE

Chart 6 combats the theory that has been held for many years that the curve showing the incidence of diphtheria corresponds with the opening of the schools. I am very much of the opinion of Dr. Newsholme that diphtheria becomes epidemic only in years in which the rainfall is deficient, and that the epidemics are on a larger scale when three or more years of deficient rainfall follow one another. As far as my experience of twelve years in South Carolina is concerned, I find that the curve of the incidence of diphtheria coincides with the drought that occurs usually with us in August and September, and that when there is an unusual lack of precipitation there are many more cases of diphtheria.

SYSTEM OF DISTRIBUTING ANTITOXIN

In 1910, when our state legislature first appropriated funds for the free distribution of diphtheria antitoxin, we believed that prompt diagnosis, together with free antitoxin, would effectively control our diphtheria problem. It required only a short time, however, to convince us that some system of supply must be established whereby diphtheria antitoxin would be readily available, at all times, and so distributed as to be reasonably convenient for the practicing physician.

Approximately 80 per cent. of our population is rural, we are more than 500 miles from the nearest biologic laboratory, and many of our smaller towns have limited mail train service, which facts are largely responsible for the creation of the system of distribution we now have, which, though simple, has proved efficient and entirely satisfactory.

Our contract with the biologic laboratory supplying us with diphtheria antitoxin provides that:

> The party of the second part (the manufacturer) further agrees to install and operate, at its own expense, a central distributing depot in Columbia, and to maintain an efficient system for the distribution and supply of diphtheria antitoxin, and to maintain suitable cold storage facilities for the proper storage of said product. The manufacturer further agrees that said central distributing depot shall be under the personal direction of a competent manager acceptable to the state board of health, shall stock and restock the state distributers of diphtheria antitoxin from time to time as may be necessary; compile the necessary records of antitoxin held and distributed by each state distributer, and carry in said central depot, in refrigeration, a reserve stock of diphtheria antitoxin of sufficient size to meet all epidemic emergencies.

In reality, we have a biologic department in connection with our executive offices, under our personal control.

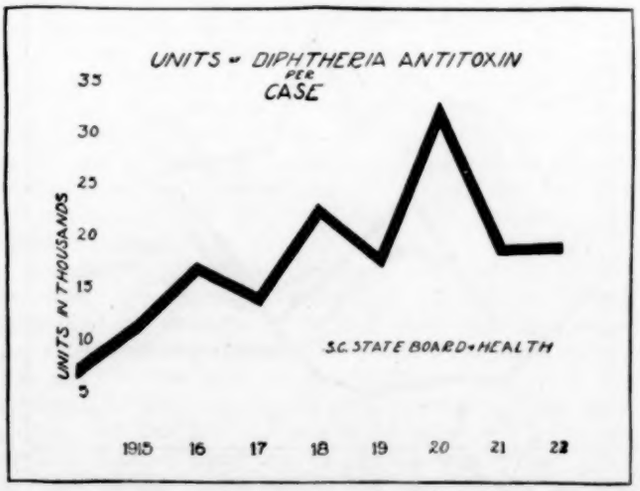

Chart 4.—Units of antitoxin per case.

Briefly stated, our distributing system consists of selected drug stores throughout all parts of the state. Every town of 500 inhabitants has one distributing station, and our cities and larger towns have more, in accordance with their population. Each station is supplied with an initial stock of diphtheria antitoxin in one, five, ten and twenty thousand unit sizes, a bound book of requisitions printed in triplicate, addressed

envelops for mailing requisitions to our supply depot in Columbia, and an instruction pamphlet.

When the physician calls at a distributing station for diphtheria antitoxin, a triplicate requisition is made out, showing the number and size of the packages supplied, and the name, sex, age and color of the patient. This requisition is signed by the physician obtaining the antitoxin and certified to by the distributer. The pink copy is retained by the distributer, and the other two are sent to our supply depot. Our supply depot, on receipt of these requisitions, replaces the antitoxin distributed, makes up our records, retains the white requisition for our file, and forwards the yellow requisition to the manufacturer, which becomes a charge against the state. Thus, it will readily appear that from the records in our supply depot we can ascertain daily the stock on hand at each distributing station, waste is reduced to a minimum, exchanges are exceedingly small, the distributer's stock rarely becomes exhausted, and the physician, even though he is called to a remote spot in a rural county, is always within a short ride by automobile of diphtheria antitoxin.

Reports are compiled monthly, and each distributer is paid a commission on all diphtheria antitoxin distributed as compensation for his services. While the commissions are not large, our experience is that druggists throughout the state are constantly seeking appointment as official distributers.

There is no charge whatever for any diphtheria antitoxin supplied by the state board of health, no certificates are required, and rich and poor, white and black, are treated alike.

At our supply depot in Columbia we carry in refrigeration a reserve stock sufficient to meet any emergency that might arise, and should an epidemic develop suddenly we are always prepared to supply such antitoxin as is needed immediately.

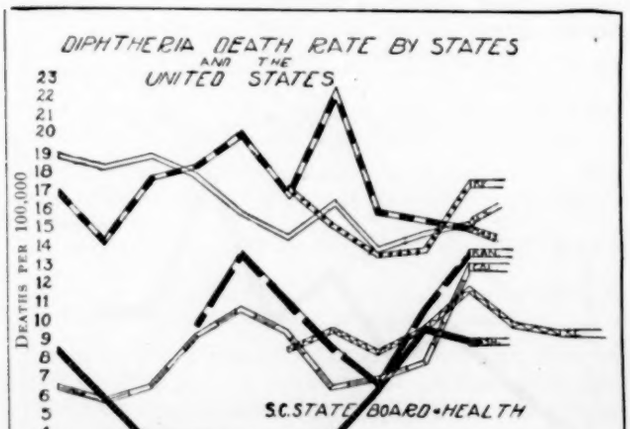
DIPHTHERIA DEATH RATE BY STATES AND THE UNITED STATES
DEATHS PER 100,000
23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3
S.C. STATE BOARD of HEALTH
1911 12 13 14 15 16 17 18 19 20 21 22

Chart 5.—Diphtheria death rate in six states and in the United States.

Chart 6 combats the theory that has been held for many years that the curve showing the incidence of diphtheria corresponds with the opening of the schools. I am of the opinion of Dr. Newsholme that diphtheria becomes epidemic only in years in which rainfall is deficient, and that the epidemics are on a larger scale when three or four years of deficient rainfall follow each other. As far as my experience in South Carolina is concerned, I find that the curve of the incidence of diphtheria coincides with the drought which occurs usually with us in August and September, and that when there is an unusual lack of precipitation there are a much greater number of cases of diphtheria.

CONCLUSIONS

1. The best method of reducing the mortality from diphtheria is by having diphtheria antitoxin ready for free distribution by the physicians, and easily obtained with no intervening red tape.

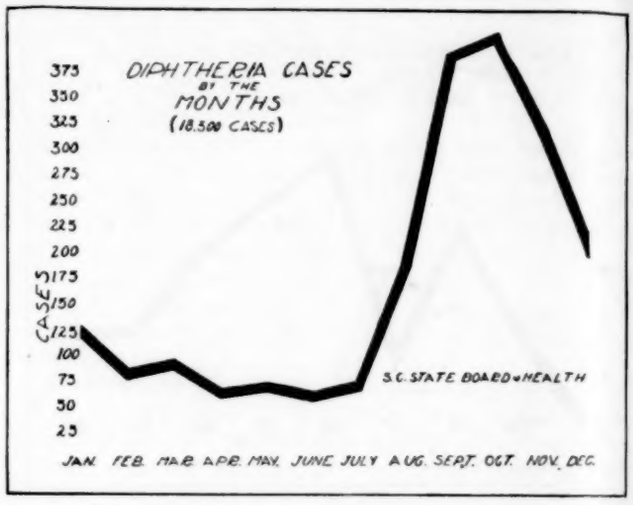
DIPHTHERIA CASES BY THE MONTHS (18,300 CASES)
CASES
375 350 325 300 275 250 225 200 175 150 125 100 75 50 25
S.C. STATE BOARD of HEALTH
JAN. FEB. MAR. APR. MAY. JUNE JULY AUG. SEPT. OCT. NOV. DEC.

Chart 6.—Diphtheria cases (total, 18,300) by months.

2. The morbidity can best be reduced by passive immunization of contacts and active immunization of as many individuals as possible who show by the Schick test that they are susceptible to the disease.

3. The curve of the incidence of the disease being upward in the United States, it behooves us, as sanitarians, to wage an immediate campaign so that the knowledge that we have of how to prevent and cure diphtheria may be at once available to the public as well as the profession.

ABSTRACT OF DISCUSSION

DR. F. M. MEADER, Detroit: Our experience has been that the Schick test complicates the situation, so that toxin-antitoxin is not given as much as it should be. Of course, the Schick test has its laboratory use. The children who should be immunized are young; 95 per cent. of those who die of diphtheria are under 6 years of age. We can give toxin-antitoxin to our school children, but by so doing we are not going to lower the death rate. We must give the children of preschool age toxin-antitoxin; then we can expect to lower the death rate. If we ask the doctor to make a Schick test in all cases, he will not do it, and the children will not be immunized. However, if we make toxin-antitoxin available, so that the physician will give it to the young in a large way, then we shall immunize the class of people who are increasing the death rate, or keeping it high. In regard to diphtheria carriers: The laboratory men have great difficulty in differentiating the toxic from the nontoxic type of diphtheria bacilli. For that reason, a great many children are isolated and kept out of school and quarantined because of an organism in their throat or nose or ear which resembles the diphtheria bacillus. How to differentiate these two is the problem that has interested us during the past year. There are in Detroit approximately 150,000 school children, distributed in 230 schools. October 2, instructions were issued to readmit children who had positive diphtheria cultures, provided it could be shown that they had not been exposed to diphtheria, so far as known. The result has been as follows:

thirty-seven children with positive reports have been readmitted to thirty-five different schools. Since their admission five cases of diphtheria have occurred in their rooms. The onset of these cases appeared after the following periods subsequent to the date of admission of the carrier: six days, ten days, twenty-five days, thirty-eight days and forty-four days. In one room a case appeared six days after the carrier returned, and another case developed ten days after a carrier returned. The second case was a contact with the first case. It may be that this carrier was the source of infection in the first instance, but it would seem as if other cases should have developed if this were the source. There were 653 cases of diphtheria in all the schools during the year. The fact that thirty-seven children of the kind described returned to class in thirty-five different schools, and that no cases developed following this procedure, except possibly in one instance, would seem to indicate that carriers who have not been in contact with known cases need not be feared as a source of infection for diphtheria. So firmly do we believe that this is the case that we have permitted children who have positive cultures, who have not been associated with cases of clinical diphtheria so far as known, to come to our baby clinics, and to the present we have no records of infection spreading.

DR. S. W. WELCH, Montgomery, Ala.: Public health work is a business and should be conducted along business lines. A health department should follow the same business lines as a bank or a department store. It is particularly pleasing to notice the fine exhibition of bookkeeping and accounting the health department of South Carolina has shown us.

DR. JAMES A. HAYNE, Columbia, S. C.: Kentucky at present heads all of the other states in the number of cases of diphtheria. This is due to the recent drought, which started about 1918. Up to that time Kentucky had been getting along fairly well; in fact, the diphtheria morbidity had been coming down until 1918.

NEPHROTRESIS FOR RECURRENT BILATERAL PYELOLITHIASIS IN HORSESHOE KIDNEY*

KERWIN KINARD, A.B., M.D.
KANSAS CITY, MO.

Janosik in 1887 [1] found, in a 3 mm. embryo of about 18 to 19 days, what he described as the pronephros or head kidney. It consisted of two rudimentary tubules, which were funnel shaped structures of peritoneum, and they extended from the mesothelial lining of the body cavity toward the primary excretory duct or the pronephric duct, into which one of the tubules opened.

The pronephros is a vestigial structure having a brief existence, and probably no functional activity. It represents the earliest development of the excretory system. The mesonephros, or wolffian body, is developed as the intermediary organ of excretion between the time of degeneration of the pronephros and the appearance of the metanephros, or permanent kidney.

The pronephros evolves the fundamental plan on which is based in a modified form the subsequent development of both the mesonephros and the metanephros.

The paraxial mesoblast extends from the neural tube in the early embryo to the point of its division into the mesial layer, or splanchnopleure, and the external layer, or somatopleure. This mesoblast is made up of the mesial part, called the somite, and adjacent to it is the lateral part or intermediate cell mass.

On either side of the midline, below the mesoblastic somite, small dorsally situated knobs appear on the nephrotome of the intermediate cell mass, from the seventh to the fourteenth segments. These are found just beneath the ectoblast, but independent of it. These knobs lengthen and grow caudad and laterad as short rods, and are the anlages of the primitive excretory duct, known now as the pronephric duct, and the pronephric tubules. These rods soon fuse, forming a long tube, which becomes hollowed a little later to form the duct. The tubules also acquire a lumen, and about the third week they lie embedded in the mesoblast of the intermediate cell mass.

This duct grows caudally as a blind end, and about the fourth week, as a mesonephric continuation of the pronephric duct, approximates the dilated terminal portion of the hind-gut with which it fuses and finally empties into the cloaca.

The inner ends of the pronephric tubules expand and become ciliated to form the nephrostomata, through which they open into the coelom, or body cavity of the embryo. Twisted knots of arterioles from the abdominal aorta grow into these expanded ends and form the primitive glomeruli. Each of these tubules with its glomerulus, from the seventh to the fourteenth, represents a body segment.

En résumé, the pronephros or head-kidney is made up of the pronephric portion of the primitive excretory duct with its tubules, and their glomeruli, which project freely into the body cavity. It degenerates early; but before it has degenerated, the mesonephros, or intermediary excretory organ, has appeared, whose cephalic end is in proximity to the caudal end of the pronephros, and slightly in front of it.

The mesonephros has been developing while the pronephros was degenerating, and now has its primitive excretory duct, called the mesonephric, or wolffian, duct manifest, which is a morphologic persistence of, and a direct continuation caudad of the pronephric duct *en route* to the cloaca.

The mesonephric tubules have their anlage appear in a similar manner to those described for the pronephros. The embryo has grown, and the growth of the mesonephric duct and tubules is directed tailward. The anlage of the tubules of the mesonephros arise from the tenth to the twenty-eighth body segments.[2] The most cephalic of these tubules arise just caudal to the pronephros, and overlap the latter. Caudal to the tenth pair of body segments, the mesonephric anlagen arise from the nephrogenic cords, and the primary excretory ducts lie lateral to these and are of unsegmented mesoderm.[2]

As the mesonephros develops, the embryo grows. As these processes are going on, the tubules of the mesonephros develop in such a way that the organ probably remains comparatively the same size during the most active part of its functional life. As the cephalic tubules degenerate and become atrophic, the caudal tubules are constantly forming. The mesonephric tubules open into the primary excretory duct at their outer ends, while the inner ends become expanded and have glomeruli develop in them not unlike those described in the case of the pronephros; but these glomeruli are less primitive, and do not communicate freely with the coelom.

The mesonephros extends from the sixth cervical to about the third lumbar segment as the caudal limit, in embryos of 7 mm., or between the fourth or fifth weeks of intra-uterine life. About eighty of these pairs

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Janosik, cited by Marshall: Vertebrate Embryology, 1893.

2. Prentiss and Arey: A Laboratory Manual and Text Book of Embryology, Ed. 3, 1920.

of mesonephric tubules develop in all, of which, owing to degeneration, only twenty-one pairs remain present in embryos of 21 mm. in length, or about the seventh week of intra-uterine life.

The glomeruli of the mesonephric tubules form a single median column, while the tubules are dorsal and the duct is lateral in position. The primary excretory duct is solid in embryos of 7 mm. in length.[2]

When fully formed, the mesonephros extends from behind the lung anlage to the lower end of the gut tube, along the posterior wall of the body cavity for its whole length. It is during the second month that it attains its perfection, after which it rapidly degenerates, and persists in the male as the vas deferens and its contiguous structures; while in the female it persists in the broad ligament as Gartner's duct and the tubules of the epoophoron and paroophoron.

As the tubules of the mesonephros expand in 7 mm. embryos, there is insufficient space in the dorsal body for this expansion; so they cause a bulging out into the ventral coelom, which forms a ridge on the dorsal mesentery from the sixth cervical to the third lumbar segments. This ridge forms the urogenital ridge and develops the future sex gland.

Prior to the atrophy of the mesonephros, the renal blastema has been active, the anlages of the metanephroi have appeared and the rudimentary primitive kidney, owing to a fusion of these two embryologic structures, has been under process of construction.

Evagination of the primary excretory duct to form a small bud occurs near the band where it joins the cloaca. This bud grows dorsad, and constitutes the anlage of the metanephros. These renal buds grow posteriorly in such a way that the blind end of each can dilate, while the stalk to which it is attached may elongate. While this growth occurs, the elongated stalk becomes the ureter, and the dilated portion becomes the future kidney pelvis. The kidney pelvis of each now forms a cephalic and a caudal pole, and each of these divide many times to form the calices, and eventually the canaliculi, and their completed systems of canals; some of these become papillary ducts, while others become the collecting tubules.

Meanwhile, these systems of collecting tubules have reached, grown into and been capped by the renal mesenchyme, which up to this time has been a mass of practically undifferentiated mesoblast, and has been termed the renal blastema. It very soon differentiates and forms the cortex, columns of Bertin, supportive stroma, and the capsule of the kidneys. This occurs about the fifth or sixth week, while the kidney is still in the pelvis of the embryo, but slowly migrating upward. As the metanephros develops, it grows cranialward, and carries the renal blastema with it while differentiating into kidney cortex, and soon we have the true rudimentary kidney.

At about six weeks in an embryo may be seen small spherical masses [2] developing in the angles formed by the meeting of the new collecting tubules with the renal blastema, so that each angle has one spherical mass of blastematous tissue on it. This mass soon elongates, becomes tubular, and unites with its collecting tubule to form a renal corpuscle. From each of these there is developed a uriniferous tubule, which, sooner or later, develops a proximal portion, a loop of Henle, descending and ascending limbs, a connection portion which lies close to the renal corpuscle, and a distal convoluted portion continuous with the collecting tubule.

The capsule of Bowman is now manifest, and a shallow cavity is soon formed, into which arteries penetrate to form a glomerulus. As the vessels penetrate, the depth of the cavity increases until finally the walls of the capsule grow about and enclose the glomerulus except at the point at which the arteries enter and the veins leave it. Renal capsules are first fully formed in embryos of about 7 or 8 weeks, and this kidney development continues until after birth, for a period of ten days, more or less.[2]

In summary we may say that an embryo during its fifth week of intra-uterine life has its metanephroi, or permanent kidneys, in a rudimentary form. They lie in the pelvic cavity of the embryo opposite the second sacral provertebra, just below the bifurcation of the aorta in a space that is inverted V-shaped, and bounded on either side by the common iliac artery. Pressed into this space, the metanephric buds appear anterior, growing toward the renal blastema, which lies posterior, and which they soon penetrate.

This growth continues until the seventh or eighth weeks, during which time the renal buds have enlarged, and from their blind ends the pelves, calices and collecting tubules have been developed; while the renal blastema into which they have grown has become molded over the collecting tubules to form the rudimentary kidney, whose migratory ascent out of the pelvis has begun. At this time, the kidney and pelvis lie in the frontal plane, and move upward over the common iliac vessels, until the normal resting place in the posterolateral body wall opposite the second lumbar vertebra has been reached. Gray gives the normal adult limit of the kidney as the twelfth thoracic vertebra for the upper pole and the third lumbar vertebra for the lower pole, with the right one a little lower than the left. This has occurred from about the ninth week onward.

The kidney soon places the ureter posterior as it goes through the process of rotation, or a turning on its longitudinal axis toward the median line until it settles and becomes definitely anchored in its retroperitoneal pouch in the posterolateral body wall. Here it develops its permanent vascularization from the aorta.

With this understanding of the development of the normal kidney, we may now proceed with a discussion of the horseshoe kidney, which is the type of fused kidney to which I shall try to limit my remarks.

THE HORSESHOE KIDNEY

Beel,[3] quoting Kupffer, has decided that the renal buds, as they develop from the primary excretory duct, approach abnormally near the median line, touch and fuse, and form a horseshoe kidney.

Birmingham,[4] in 1890, discussing his case of sigmoid kidney, said that the facts pointed to the common belief at that time, relative to fused kidney, namely, that each kidney developed separately to a certain point, when, for some unknown reason, fusion occurred, and a permanent union of the lobules resulted.

Broman, quoted by Brunner,[5] says that the early normal pelvic position of the caudal poles is one in which they nearly touch each other, and have no intervening organ. Potentially, the possibility of fusion seems ever present, because the caudal poles are nearer together

3. Beel, T. A. L.: Contribution to Renal Anomalies, Ztschr. f. Fleisch- u. Milch-Hyg. **13**: 118-120, 1903.

4. Birmingham, A.: Simple Unilateral (Sigmoid) Kidney, Tr. Roy. Acad. M. Ireland **8**: 477-488, 1890; Dublin J. M. Sc. **90**: 47-50, 1890.

5. Brunner, A.: Contributions to Renal Pathology: A Duplicate Kidney and a Case of Hydronephrosis in a Horseshoe Kidney, Beitr. z. klin. Chir. **122**: 136-152, 1921.

than the cranial poles. These facts all seem logical in explanation of the early fusion of the horseshoe kidney.

Papin and Iglésias [6] say that when fusion occurs to the upper poles, the kidney is lower than those fused by the lower poles. They say that horseshoe kidney is a very early malformation, which precedes the appearance of the permanent vessels in the kidney.

Winternitz [7] says that mobility of the kidneys at their upper poles is limited, because of the close connection of the caudal part of the mesonephros with the cranial tubules of the metanephros. The development embryologically substantiates this, because at the eighth week the mesonephros is at the height of its growth.

Bryan [8] says fusion occurs at the lower poles about the seventh or eighth week of intra-uterine life of the embryo, and more rarely does union of the upper lobes occur. But he says that in his case union occurred after the seventh week, when the kidney had arisen over the promontory of the sacrum. He points out that union does not always occur within the confines of the aortic bifurcation.

Bugbee and Losee [9] say that at 7 mm. the rudimentary kidneys lie opposite the second sacral vertebra in the same relative position on the level; or one may be ventral to the other; or one may be placed above the other. They say that the connecting bridge shows more complete kidney structure, the earlier the fusion occurred, and that later fusions show only the capsules to have fused, or fibrous remains of atrophic, sclerotic parenchyma may be found.[10]

Dorland,[11] quoting Pohlman, says that the dystopic bud appears later, or develops more slowly than the normal kidney bud; and as a consequence, the normal kidney ascends and rotates properly, while the dystopic kidney does not.

Muthmann,[12] speaking of his case of fused kidney, says that fusion could not have occurred between the fifth and eighth weeks, since the hilum lay in the neutral position and the ureter and pelvis lay before the hilum.

Winternitz [7] suggests that Hill has shown that vascularization of the kidney depends entirely on its position, and that a renal bud, which has been slow in ascent, might receive its artery from a lower point on the aorta than normal, and by this means be held in the lower position. Eventually the dystopic kidney is dragged across the vertebral column by the normal kidney, he thinks.

Verocay [13] believes that one kidney is usually larger in horseshoe fusion because the enlargement of the kidney rests essentially on an increased new growth, or hyperplasia, of all the tissues composing the kidney; this Beumer pointed out, after an exhaustive study of unilateral congenital kidneys. He further cites Rosenstein and Perl, who, on the other hand, concluded, after animal experimentation, that hypertrophy is the cause of enlargement and is predominatingly due to an increase in weight; and that this is accomplished by an additional increase in the contents of blood, lymph and primary kidney constituents, as well as an abnormal thickness of the individual elements caused by increase in the amount of nourishment. They attribute only a slight rôle to the hyperplasia of epithelial and interstitial tissue.

Most writers believe with Budde [14] and others that fusion in a horseshoe kidney, with complete kidney tissue in the connecting bridge, could not have occurred later than at the beginning of the rotation of the renal pelvis.

We know that a horseshoe kidney presents certain well known features, and that among the most important are these: 1. It is usually situated at a lower level than the normal kidney. 2. Its arteries usually arise farther caudad than is seen in the normal kidney. 3. Its hilum is more neutral. 4. Its migratory ascent is incomplete, and rotation is thereby probably affected. 5. Absence of the ventral lip to the hilum is noted in fused kidney. 6. The ureter passes in front of the dystopic kidney. Especially true is this in lower polar fusion of horseshoe kidneys.

We further know that the connecting bridge of a horseshoe kidney may be of fibrous tissue, of kidney cortex or of entire kidney structure. We know also that it may exist as an accessory organ with its own blood supply.[15]

It is most necessary to consider chronological variation of the outgrowths from the wolffian duct or primary excretory duct to form the renal buds, as having to do with the time-limited schedule of growth of these organs.

If the horseshoe kidney becomes fixed low down in the pelvis, it is fair to assume that fusion must have occurred some time prior to its migration upward to the point of rotation. And if this position does determine the vascularization of a kidney, we can see how, once it has become established, it is very apt to be held there, after penetration of the kidney by blood vessels has occurred.

Felix noted from an embryo of about 8 weeks (30 mm.), which had a fused kidney, that the inferior mesenteric artery and its mesentery caught and prevented its ascent.

Budde noted in his case a bridge that had arisen between the metanephroi and that had been caught by the inferior mesenteric vessels, with failure to ascend because of this.

Relative to vascularization, McDonald [16] says that the mesonephros receives segmental branches from the aorta, but that the permanent kidney receives its temporary blood supply from the median sacral, but after its ascent it receives its permanent blood supply from the abdominal aorta.

Jeidell, working with pig embryos of 14 mm., says that the "inferior mesenteric artery gives off what may be considered the main temporary artery to the growing kidney." Wilhelmj,[17] quoting Jeidell, gives us this information, and, in addition, says that in his case the main artery to the kidney arose from the aorta, in

6. Papin, E., and Iglésias, A. P.: On a Case of Calculous Horseshoe Kidney, Ann. d. mal. d. org. gén.-urin. **1**: 424-441, 1909.
7. Winternitz, M. C.: A Case of Sigmoid Kidney, Johns Hopkins Hosp. Bull. **19**: 229, 1908.
8. Bryan, R. C.: Report of a Case of Horseshoe Kidney, Virginia M. Month. **48**: 75-80 (May) 1921.
9. Bugbee, H. G., and Losee, J. R.: The Clinical Significance of Congenital Anomalies of the Kidney and Ureter, with Notes on the Embryology and Foetal Development of the Kidney, Surg., Gynec. & Obst. **28**: 97-116 (Feb.) 1919.
10. Carlier, V., and Girard, M.: Anatomy and Surgery of the Horseshoe Kidney, Echo méd. du nord **16**: 429, 442, 1912.
11. Dorland, W. A. N.: A Consideration of Renal Anomalies; With the Presentation of Two Unique Cases, Surg., Gynec. & Obst. **13**: 303-319, 1911.
12. Muthmann, E.: Horseshoe Kidneys, Anatomische Hefte, Wiesbaden **32**: 579-587, 1906, 1907.
13. Verocay: Left Renal Impar Combined with Anomalies of the Genital Organs, Abdominal Arteries and the Skeleton, Prag. med. Wchnschr. **32**: 637-641, 1907.
14. Budde, Werner: The Genesis of the Horseshoe Kidney and Related Malformations, Wiesbaden, J. F. Bergmann, 1913.
15. Alezais: The Horseshoe Kidney and the Anomalies of Renal Arteries, Compt. rend. Soc. de biol. **60**: 889-891, 1906.
16. McDonald, A. L.: The Practical Importance of Common Renal Anomalies, Am. J. Dermat. & Gen.-Urin. Dis. **15**: 417-423, 1911.
17. Wilhelmj, C. M.: A Case of Crossed Displacement of the Left Kidney with Fusion, Anat. Record **18**: 167-177, 1920-21.

common with the inferior mesenteric, and because of this we can determine roughly the time at which the displacement occurred, because the renal veins at the same stage are tributaries to the posterior cardinal veins. If we presume that the kidney was prevented from reaching its proper height of ascent, then we may infer that instead of the left renal vein emptying into the posterior cardinal vein at the point of anastomosis, it must have reached the posterior cardinal *lower* than that point. His case showed that the left spermatic vein was also low and entered the left posterior cardinal below the renal vein, and that when the kidney was displaced, this long vessel was carried with it across the aorta and under the inferior mesenteric artery, which might explain similar observations made by other writers.

There seems to be little doubt that mechanical factors play an important part in the formation of horseshoe kidney. There is no reason why we should not assume that growth occurs in the embryo on a time schedule, and that interference with this time schedule is apt to produce an anomaly or malformation. If the schedule is properly adhered to, we may assume that the organs become normal in size and position.

Strube, as pointed out by Heiner,[18] thinks the vertebrae, sacrum, the iliac fossa, and, in addition, the contents of the abdominal and pelvic space influence the flattening. Heiner thinks that all kidneys, whether fused or not, show regularly the discoid form, with the hilum in the anterior position. He, too, believes that these modifications are influenced by neighboring organs.

Budde says the stomach was low in the cases of fused kidney that he investigated. The lowest the stomach was noted was down to the middle of the fourth lumbar vertebra, at which time the heart lay opposite the twelfth thoracic vertebra. The embryo liver, correspondingly, was enormous, and reached on both sides to the fifth lumbar vertebra, and by intervening glands like the suprarenal glands, pressure could have been exerted on the growing kidneys. So these factors may exert some influence in a mechanical way deleterious to the normal growth and ascent of the kidney.

Wilhelmj says, relative to retarded growth, and alteration of the time schedule, that at least three factors may play a part in the displacement of a kidney: (1) rotation of the gut, when it assumes its normal position; (2) the great increase in size of the caudal end of the wolffian body, which would not affect a normal kidney because the latter would already have migrated toward the cranial end of this organ, which is undergoing degeneration and atrophy simultaneously, and (3) the descent of the sex gland.

In his case, displacement occurred, he believes, before the rotation of the intestine, because of the relation of the left ureter to the pelvic colon, and the relation of the left renal vein and artery to the inferior mesenteric artery as previously explained.

CONCLUSIONS

After studying carefully the literature on horseshoe kidneys, we are confronted with several outstanding conclusions, which seem fairly well established:

1. The inverted V-shaped crotch, resulting from the bifurcation of the abdominal aorta into the common iliac vessels, shows a tendency to converge the two lower kidney poles during early development and migration out of the pelvis of the embryo.

2. Fusion occurs early in a typical horseshoe kidney, probably soon after the renal buds penetrate the blastema to form the rudimentary kidneys.

3. The nearer the time of fusion occurs to the early formation of the rudimentary kidneys, the more likely it is that the connecting bridge will be made up of normal kidney substance; while late fusion probably always shows fusion of a fibrous character.

4. The time element is an important factor because growth of tissue probably continues on a time schedule and if an organ does not carry on according to schedule, it will be mechanically interfered with by its adjoining organs and tissues, with resultant interference with its normal development.

5. The complete ascent of a kidney is sometimes interfered with by the inferior mesenteric and umbilical vessels. The kidney may become caught in them, and vascularization may soon occur under such circumstances and permanently hold the kidney in situ.

6. The upper kidney growing ahead of the dystopic kidney may, in the course of its growth, drag the latter across the vertebral column, thus allowing it to be held there until after permanent vascularization.

7. Fusion probably occurs before rotation of the kidney pelvis has been completed.

8. The permanent vascularization comes from the abdominal aorta, while probably the median sacral gives the temporary blood supply to the early rudimentary kidney.

9. When one kidney of a horseshoe fusion becomes abnormally large, it is probably the result of hypertrophy and hyperplasia.

In our case, as presented in this paper, we believe the following steps probably occurred which resulted in the formation of a horseshoe kidney instead of two normal and separate kidneys. It showed a fusion of both lower poles by a bridge connecting the two which was made of normal kidney structure. This gave evidence that the fusion must have occurred quite early in the embryologic development of the metanephroi. We feel that the sequence of events which led to the development of this anomaly were:

1. Earlier formation of the left metanephric bud than occurred to its fellow of the opposite side.

2. More rapid development of the left metanephros than to the right, therefore:

3. Earlier migratory ascent of the left rudimentary kidney out of the pelvis of the embryo, by its being moved upward over the left iliac artery, at which time its lower pole was quite close to the lower pole of the less rapidly developing right rudimentary kidney.

4. Beginning of rotation of the left kidney at this time and placement of its ureter posterior. Next there occurred fusion between the lower poles of both kidneys until completed. Rotation had not been completed on the right kidney at this time, because its ureter was anterior and remains so today.

5. Completion of rotation of the left kidney and pulling of this organ into its permanent anchorage or pouch, in the left posterolateral body wall with coincident dragging of the unrotated right kidney up over the promontory of the sacrum to the left of the median line, where it may have been caught and held by some mesentery or blood vessels. It was probably detained there by the future

18. Heiner, G.: Congenital Dystopia of the Kidneys and Congenital Renal Deficiencies of the Afferent Vas Deferens, Folia urolog. 3: 186-226, 1908-1909.

6. Compensatory hypertrophy of the left kidney which forced its lower part to extend to the place where the right kidney, now a part of the horseshoe kidney, had been dragged and was held in situ.

7. Permanent vascularization was begun early and helped hold this fused organ in position; it probably came from lower down on the abdominal aorta than is normally seen, and it apparently was developed from the external iliac vessels.

While this sequence seems logical, further observation by other writers on this subject may teach us a great deal that at this time is not definitely known concerning the formation of fused kidneys.

REPORT OF CASE

History.—R. F. G., a man, white, aged 33, an engineer, married, complained of fever and chills, headache, gaseous distention of the abdomen, and radiating pains into the right testis from the left lumbar region, where a sensation of fulness existed.

The patient was fairly well until June, 1919, when he noticed an intense pain at the upper end of the inguinal canal, which radiated downward, as it became more severe, into the right testis. The case was diagnosed as incomplete hernia, and the patient was given a purgative and improved. Then he was given a truss, followed by some relief after three or four weeks of its use. About this time, he noticed that the urine was turbid and had a disagreeable odor. In a short time he was conscious of a general depression and weakness, which was cumulative as the months dragged along.

In February, 1920, the patient had another attack, similar to the previous one, and, thereafter, the attacks became more frequent, and each attack lasted longer than the one before. About this time, the abdominal soreness that followed each attack lasted from one to four days, during which time the abdomen was distended with gas, and the patient was extremely uncomfortable until the gas finally was passed. From November, 1920, to about April, 1921, the attacks came about every fortnight, with passage of small calculi; finally the urine showed pus and blood in quantity, and the attacks were associated with much pain in the left lumbar region, a fever up to 103.6, at times and chills. The pain radiated into either testis, but never into the two at one time. The case at this time was diagnosed as probable lateral nephrolithiasis.

The patient was operated on, April 10, 1921, at a large Western clinic, by another surgeon. A left loin incision for stones in the kidney was made, and at this time a horseshoe kidney was found, which had stones in both kidney pelves. These stones were removed by bilateral pyelolithotomy, and the pelves were closed. The stones removed from the left kidney weighed 24.35 gm. and 6.57 gm., respectively, and one calculus weighing 6.22 gm. was removed from the right kidney. The oblique incision was continued toward the left anterior superior spine in order to examine further the horseshoe kidney. The left kidney was found to be about 6 inches long, and joined by its lower pole to the lower pole of the right kidney. The right kidney was about 3 inches long, and its pelvis and ureter were lying to the left of the median line. Each kidney pelvis was dilated, but the kidney proper was not damaged, judging by gross appearance. The wound was closed with interrupted catgut in a manner to permit posterior drainage.

Following operation, the patient had a stormy convalescence, with high fever and chills. He said that he developed four attacks of streptococcic infection that involved the tonsils, sinuses of the face, pleura, and, finally, the right testis. He said that he was told he had phlebitis of the left leg following the removal of the drainage tubes. The tonsils finally were removed, after which he did not seem to gain much strength; he was pretty well worn out and still continued to have chills and fever. After he returned to Kansas City, his condition remained the same, and the chills and fever became continuous.

Finally, in October, his condition became grave. At this time, the daily temperature of the patient varied from 99 to 103.3 and he had chills and fever. He was removed to the Research Hospital, Kansas City, Mo., under the care of his physician, where I saw the patient in consultation, and we decided on rest, forced fluids, urinary alkalization, cystoscopic examination and some subsequent operation was believed necessary.

The patient had had the usual childhood diseases. He was healthy until 1907, when he had a cystostomy performed for stones in the bladder. Recovery was complete, except for pleurisy following the operation. The family history revealed nothing of importance. The patient stated that he had had no venereal infection. His wife had had one child in 1919, which died after one year's illness of some kidney infection following an influenzal attack. The patient had never drunk alcoholic liquors, was a moderate smoker and did not indulge in excesses.

Physical Examination.—The skin was a pasty white, and hot and dry in the late afternoon. The tongue and lips were dry. The pupils reacted to light and in accommodation. There was no cranial nerve involvement. The ears were normal. The nasal septum was crooked. There were no tonsils. The hair and teeth were normal. The thyroid gland was normal. The mucous membranes were pale. There was vesicular, bronchial breathing. There were no râles. The precordium was normal in outline. The rate of the heart was increased, and a systolic murmur was heard at the base, which disappeared when the patient sat up. The point of maximum intensity was felt in the fifth interspace, 1 inch inside the midclavicular line. The spleen and liver were negative on palpation. The right kidney was not palpable; the left kidney was not definite; it did not move with inspiration. The abdomen was distended; there was tenderness in the left loin near the costovertebral angle, and soreness on that side did not permit careful examination. Tenderness extended down into the midline near the region of the pubes. A mass that was vague and tender was noted in the left flank, and to the left of the umbilicus it was indefinite. The reflexes were slightly increased. The extremities were normal.

Laboratory Examination.—On admission, the blood showed: coagulation time, one and one-half minutes; hemoglobin, 90 per cent.; erythrocytes, 4,864,000, and leukocytes, 9,600 (subsequent counts were 12,500, 14,000, 21,000, etc.). The differential count showed polymorphonuclears, 65 per cent. (subsequent counts were 76, 79 and 77 per cent.); lymphocytes, 32 per cent.; large mononuclears, 2 per cent., and transitionals, 3 per cent. The blood sugar was 0.09 mg. per hundred cubic centimeters. The Wassermann reaction was negative. The urine was cloudy, straw colored and acid. The specific gravity was 1.026. Albumin and urates were present. A few erythrocytes, pus cells and a few acid fast bacteria and epithelium were found. Otherwise, the urine was negative. There were many motile bacteria. A culture of the urine yielded staphylococcus and *B. coli,* from which a vaccine was made. The total solids were 11 mg. per hundred cubic centimeters; urea nitrogen, 9 mg. per hundred cubic centimeters. The total urea was 3 mg. per hundred cubic centimeters.

Roentgenologic Examination.—After a barium enema had been given, the cecum was evenly distended and well filled. The descending colon and transverse colon were of normal caliber. The flexures were normal. There was no appendical shadow.

After a barium meal, the stomach appeared normal, and emptied completely in five hours. The duodenum and jejunum were also normal. The ileum was normal, and showed no diverticula. The ileocecal valve was patent. Occasional spasticity was noted in the transverse colon.

Shadows showed in the pelves and ureters of the kidneys. There was also a complete obliteration of shadows after an injection of sodium bromid into both pelves, with a reappearance of shadows after release of the pent-up bromid and withdrawal of the ureteral catheters. The roentgen-ray catheter made a complete turn in the left pelvis and ureter.

Cystoscopic Examination.—November 24, Dr. R. Lee Hoffman of Kansas City, Mo., examined the patient with a cystoscope. The patient complained of pain in the left lumbar region and in the right testis. Examination by palpation of the internal genitalia and renal areas was negative. Trigonal cystitis was disclosed, with pus flakes in the bladder media

There were thick pus casts about the ureteral orifice on the right side. The right ureteral orifice stood open, and was thickened and seemed to spurt urine. The left ureteral orifice stood open and had considerable edema present. The urine from this side spurted clear.

Right and left No. 5 ureteral catheters were easily introduced into the renal pelves, and clear urine was obtained from the left side, but none from the right. Lavage from the right side brought urine loaded with pus.

Examination of the urine showed albumin, many pus cells, epithelial cells and no casts from the right kidney. Urine from the left kidney showed some albumin, a few pus cells and no casts.

One c.c. of phenolsulphonephthalein was injected intravenously. The appearance time was: right, ten minutes, 2 per cent.; left, four and one-half minutes, 15 per cent. Roentgenograms taken after the injection of 40 c.c. of sodium bromid (15 per cent. solution) into the left pelvis, and 12 c.c. of thorium solution into the right pelvis showed nine shadows in the left renal region, with no shadows in the right area but a shadow in the bladder region after shadowgraphic fluids had been drawn away ten minutes later.

A roentgenogram showed that the left ureteral catheter made a complete loop on itself in the upper third. Both catheters were allowed to remain in the ureters for drainage, and were removed during the night by the patient.

The patient continued to have chills; so retention of the catheter on the left side was suggested. October 28, a catheter was passed into left renal pelvis for five days. The temperature improved. November 1, an intramuscular phenolsulphonephthalein test showed:

	1st Hour Per Cent.	1½ Hours Per Cent.	2 Hours Per Cent.	½ Hour Intervals Per Cent.
Left side	15	12	10	37
Right side	16	12	10	38

The case was diagnosed as bilateral, recurrent pyelolithiasis, with a horseshoe kidney.

Operation.—(Drs. Kinard and Hoffman; anesthetist, Dr. Clark).—An operation was performed, November 2. The patient was given a hypodermic injection of morphin, ⅙ grain, and scopolamin, 1/200 grain, one hour before operation. The anesthesia used was nitrous oxid and oxygen. The patient was placed in position for a left nephrectomy. The sphygmomanometer showed blood pressure systolic, 130; diastolic, 80; the pulse was 114.

An incision was begun at the twelfth costovertebral angle, and carried around the old scar through the skin and fascia, obliquely around the loin toward the left anterior superior spine. The old scar was excised, and the incision continued through the old scar and muscle tissue to the perirenal fat. Many adhesions were encountered, and bleeding was free. The incision was enlarged anteriorly, and the left kidney was isolated and the peritoneum pushed away from it. Hot packs wrung out in saline solution were used to maintain warmth as the peritoneum was pushed toward the median line of the body.

Some small vessels had developed in the fibrous tissue and attached themselves to the kidney capsule. These were doubly ligated and cut. The upper pole was finally freed, and extended opposite or higher than the upper part of the first lumbar vertebra. The kidney was large, about 6 inches in length, and the pelvis was dilated somewhat, though it was not so noticeable at operation as the roentgenogram showed following injection with opaque fluid.

The lower pole of the kidney was examined, and an oblique line of cleavage, which was smooth, was felt between the lower pole of the right and left kidneys where they joined each other, and the connecting bridge was apparently of complete renal substance. It was difficult to realize from palpation that the two kidneys had not been intended to unite in this way; the fusion was perfect. The left ureter was in its normal position, and was placed posterior. On palpation, the right kidney was found lying just above the promontory of the sacrum, and its size was about half the size of the left kidney. The hilum pointed craniad and forward. The kidney had its concavity upward. The ureter crossed over the front of the right kidney. The left renal vessels came from low down on the aorta, probably the left iliac artery. There were no distinct stones, but hardened masses were palpable in the pelvis of each kidney.

At this time, the anesthetist reported that the patient's condition was not good, and the blood pressure had dropped rather suddenly. The examinations were stopped, and the left kidney was incised down the median line, for about 3 inches. No cultures were taken. The ureter held no visible pus, and no stones were encountered; but a thick, gritty inspissated material was encountered, which was washed out as quickly as possible by saline sponges. A ⅝-inch tube was then inserted through the kidney substance into the pelvis of the left kidney. The kidney was closed around the tube with No. 1 chromicized catgut, with deep mattress sutures, while superficial interrupted sutures were placed through the kidney substance between the mattress sutures. The gauze packs were removed. Small drainage tubes were inserted, and held in place by interrupted chromicized No. 2 catgut sutures.

The patient at this time had a systolic blood pressure of 76, and a diastolic pressure of 54; the pulse was about 136. He was sent to his room in poor condition.

Course.—The patient, on return to his room, was given 1,200 c.c. of physiologic sodium chlorid solution by hypodermoclysis. Fifteen drops of epinephrin chlorid solution (1:1,000) was given intravenously. Electric pads were applied, the foot of the bed was elevated, and other measures of relief were taken until reaction occurred several hours later. One-fourth grain of morphin and 1/100 grain of atropin was given until reaction had fully set in. Protoclysis was used continuously of a solution made of glucose, sodium bicarbonate and tap water, which the patient retained well. One hour later the pulse dropped to 120 and the temperature rose to 100 F., while the systolic blood pressure was 85, and the diastolic pressure was 65.

At 4:30 p. m., on the day of the operation, the blood pressure had risen to 150 systolic, and 110 diastolic; the pulse was 112, and the temperature was 101.5 F. The patient was fully awake and felt well, and copious drainage from the tube in the pelvis into dressings had already begun; the discharge was bloody at first, and later, thick, grumose, malodorous urine drained away each time the dressing was changed. One week later, the temperature was lower; chills had been absent since the operation. The bowels had moved well, and drainage was excellent. The perirenal drains were removed between the eighth and tenth days, while the main tube was left for two weeks, when it was replaced by a soft rubber catheter No. 14. No lavage was ever attempted through this tube. The wound had healed by this time except at the nephrotresis site.

The patient did very well, but had one distressing symptom throughout this period, and this was the presence of gas pains. He had several enemas daily which, at first, relieved the condition, but only temporarily. About this time, his previous three daily enemas were discontinued, pituitary extract was used, and the gas pains disappeared. Thereafter, with the use of the lightest of cathartics, no trouble with the bowels was encountered.

The patient progressed satisfactorily. He was vaccinated for smallpox, November 26 (epidemic in Kansas City), and, November 27, he developed a right saphenous phlebitis, which lasted until December 8.

Fluids were pushed to the limit during the first forty-eight hours, at which time active peristalsis was noted throughout the abdomen. November 10, the daily output was 1,400 c.c., while the nightly output was 1,000 c.c. from the tube and bladder combined. During this time, the daily intake of fluids was 3,500 c.c.

Thereafter, the intake averaged 1,700 c.c. in twenty-four hours, and the output about 1,500 c.c. About one third came from the bladder, and about two thirds drained through the nephrotresis into his rubber bag.

The patient was discharged, December 8, and he was allowed to go home, although his temperature was ranging between normal and 99.2 F. His symptoms one month later had practically disappeared, and he was getting stronger and gaining weight. The patient has continued since December 8

gradually to get better, and today he says he feels as well as he ever did in his life. He works every day, and has had no difficulty or pain since the operation.

He now wears his rubber tube, which is changed daily. When the granulations block the sinus, he wears his silver tube, which is fenestrated and which, after wearing for twenty-four hours, opens the sinus, and, on its removal, cuts out the granulations along its course, allowing subsequently perfectly free drainage. He wears the apparatus, which he devised himself, and which drains the urine into a receptacle that he wears on the inside of the left lower leg.

COMMENT ON CASE

The patient on admission was so sick that it was a question whether the kidneys would increase their elimination on the forcing of fluids, alkalization of the blood and the usual local treatments.

However, he responded to his treatments very quickly, and continued to improve. We were forced to consider surgical intervention as inevitable. We already knew that the kidneys were fused, but we did not know how they were fused. The surgeon who had previously operated gladly gave us the information as to the condition he found at the previous operation as herein outlined.

In order to get more definite information, the blood and urine had been studied carefully day by day. Focal infections were considered, and after the urine of catheterized specimens had been studied, we decided that the fused kidneys would secrete under proper environment. Autogenous vaccine caused no improvement.

Several facts were manifest. The kidney stones had been properly removed less than six months before, and the patient did not show improvement following the operation. In fact, he soon became worse. Pain was his chief symptom, and pyuria his important clinical finding. Some improvement followed after five days of retention of a ureteral catheter in the left ureter, and lavage through it.

The pelves of both kidneys were dilated, owing to blockage. The pain and discomfort were caused whenever the urine could not pass the obstructions in the pelves. Under such conditions, it might not take a great while before a hydronephrosis or pyonephrosis might develop. Heminephrectomy was considered unwise. The retention catheter showed relief, if not improvement, from the drainage it afforded.

Two surgical possibilities now confronted us from the operative standpoint. One of these operations was to do a transperitoneal removal of the stones. The other was to leave the stones in situ and perform a nephrotresis.

Dr. Hugh Cabot was seen in consultation at this time, and he advised the removal of the stones. We were about to abide by his judgment, when we were again brought to a realization of the very insecure condition of the patient, and his absolute inability to go through with much more suffering. He had lessened toxicity under treatment, but was gradually becoming weaker.

With a history of rapid recurrent stone formation, it seemed best to make a permanent drainage to the left kidney and pelvis through the loin, or nephrotresis, which would at all times secure ample drainage, should the pelvis of the left kidney become completely blocked at some future time. The right kidney was secreting better than previously, and, so far as excretion was concerned, was entirely a separate organ from the left kidney, as we learned from our embryologic study.

We proposed to do as much as possible under the circumstances at operation. The ideal combination would have been to remove the stones from both kidneys and to perform a left nephrotresis, but the condition of the patient made such a procedure impossible. So it was finally decided that should the patient recover after this operation, the removal of the stones could be more safely done at some future time by the transperitoneal route.

But, until the physiologic chemists find out what was causing the stones to form so rapidly and what was to be done medically to prevent recurrence, we felt we had no assurance that removal of the stones from the kidney would benefit the patient. It is quite possible that the right kidney may gradually develop a hydronephrosis which may form a fibrous wall at the site of the fusion and allow heminephrectomy at some future time. This might not be a simple procedure from the information we have on this case.

Bryant Building.

NEUROTOLOGIC STUDIES IN EPILEPSY

PRELIMINARY REPORT *

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LOS ANGELES

On first thought it seems a far cry between the ear, nose and throat and epilepsy. For many years the medical profession has regarded epilepsy as due to a lesion of the cerebral cortex. In recent years, the profession has begun to realize how many phenomena may be produced by lesions of the lower centers, particularly the basal ganglions and brain-stem. Robert Bárány has recently advanced the theory that the center of consciousness is probably located in the basal ganglions, rather than in the cerebral cortex. In the last few years, many neurologists have come to consider that the seat of the disturbance which results in attacks of epilepsy may be in or near the brain-stem. It therefore occurred to me that neurotologic studies, particularly of the vestibule, might shed some light on the integrity of the brain-stem, in patients who suffer recurrent epileptic seizures.

The present report is the outcome of examination of twenty-seven epileptic patients, entirely from the point of view of the ear, nose and throat. General and neurologic examination of each of these cases were made by one or more of the following physicians: S. D. Ingham, Cecil Reynolds, I. Leon Meyers, F. M. Pottenger, Thomas J. Orbison and Carl Rand, all of Los Angeles. They not only provided the material for study, but also guided me in the interpretation of the findings. Almost all of the patients were seen in private practice, and complete clinical histories are available concerning each patient.

On tabulation of the findings in the twenty-seven cases, no characteristic condition was discovered in the nose, nasopharynx, throat, teeth, mouth, external ear, middle ear or cochlea, nor was there any suggestion of intracranial auditory involvement. In contrast, vestibular impairment or abnormality was found in nearly all the cases. Of the twenty-seven, only three showed normal nystagmus, vertigo and past-pointing, and each

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of these three showed definite subnormality in constitutional responses to the vestibular tests. They failed to show the usual pallor, sweat and nausea that one finds in the normal, after prolonged turning and douching.

ANALYSIS OF CASES

The age ranged between 3 and 54 years; there were twenty-two male and five female patients.

Intracranial pathologic change was reported in thirteen cases; in the remaining fourteen cases there were no definite organic findings. Syphilis of the central nervous system was present in one case, and in one case, either syphilitic encephalitis or arsphenamin poisoning. Arachnoiditis was present in four cases, one of which also showed cerebellar cysts; external hydrocephalus, in two; meningo-encephalitis, in three. Two patients were probably toxic (one of these, following tonsillectomy, has had cessation of fits for the last ten months to date). Spontaneous subarachnoid hemorrhage was present in one case; suspected brain tumor, in one; suspected right parietal abscess, in one, and a large glioma of the right frontal lobe, in one.

SUMMARY OF EXAMINATIONS

1. *Neurotologic History.*—Dizziness was present in three cases; staggering, in two; deafness, in four; tinnitus, in three.

2. *Spontaneous Phenomena.*—Three patients had nystagmus. One had vertical nystagmus upward on looking up, and on looking to the right the nystagmus was noticeably larger in the right eye than in the left—approximately twice as large. One has vertical nystagmus upward each time he has an attack. There were no cases of vertigo. Past-pointing occurred in two cases, and falling and general swaying in three.

3. *After Turning.*—Nystagmus was prolonged in two cases; normal, in five; subnormal, in nine. One patient showed conjugate deviation to the right after turning to the right, and conjugate deviation to the left after turning to the left; another showed oscillatory nystagmus after turning. Another patient, after turning to the right, showed a larger nystagmus in the right eye than in the left eye. Another patient showed conjugate deviation of the left after turning to the left, but no conjugate deviation to the right after turning to the right. Another patient showed conjugate deviation to the right after turning to the right, although after turning to the left there occurred a distinct quick component to the right.

Vertigo after turning was hyperactive in four; normal in four, and subnormal in nine. Diametric inversion occurred in one case; after turning to the right, the patient felt that he was turning to the right instead of to the left, and after turning to the left, instead of vertigo to the right, he had vertigo to the left.

Past-pointing was hyperactive in four cases, normal in three, and subnormal in five. One of these patients showed a poor past-pointing of each arm inward; another showed absent past-pointing of the right arm to the right.

Hyperactive constitutional responses were not noted. They were normal in one case and subnormal in twenty; of these there was a striking absence of any pallor, sweat, nausea or vomiting in eight cases.

4. *After Douching.*—Nystagmus was hyperactive in one case; normal, in three; subnormal, in sixteen; abnormal, in four. One patient had vigorous nystagmus, but a tendency to conjugate deviation on stimulation of each horizontal canal; one patient had perverted nystagmus from the right horizontal and delayed response from the left vertical canals and perverted from the left horizontal; another, perverted nystagmus from the right horizontal. Another patient had a large perverted nystagmus produced by the right vertical canals and also by the left vertical canals; furthermore, the right vertical canals not only produced the wrong type of nystagmus, but there was a different type of nystagmus in one eye from the other. Another patient showed a tendency to conjugate deviation from the right horizontal canal; also perverted nystagmus from the left vertical canals and perverted nystagmus from the left horizontal canal. Another patient presented a peculiar phenomenon: when the right ear was douched, nystagmus occurred more quickly than usual, and this nystagmus increased to a fair amplitude; but as the douching was continued, instead of increasing, the nystagmus disappeared entirely. The same phenomenon also occurred in this patient when the left ear was douched.

Hyperactive vertigo after douching was not observed. It was normal in six and subnormal in fourteen; of these, five showed no vertigo response whatever, and one patient showed no vertigo on stimulation of any canal except the right horizontal.

Past-pointing was hyperactive in two, one being hyperactive from the verticals, but normal from each horizontal; normal, in four; subnormal, in eleven; of these, in one case past-pointing was entirely absent. It was abnormal in four.

Falling was hyperactive in one case; normal, in nine; subnormal, in eleven. One patient showed no fall to the right, but was normal to the left. Another patient was normal to the right and subnormal to the left. Another patient had no fall to the right, but was normal to the left.

Constitutional responses were hyperactive in one case, normal in two, and subnormal in twenty; of these there was a striking absence of any pallor, sweat, nausea, or vomiting in eleven cases.

Differentiation between the vertical and the horizontal canals was obtained in six cases. One showed good response from the right vertical canals, but poor response from the right horizontal canal; also good response from the left vertical canals, but poor response from the left horizontal canal. One patient showed no responses from any canal or set of canals, except the right horizontal. In one case the left verticals produced a wider past-pointing than the left horizontal. Two patients showed poor response from the verticals and good response from the horizontals.

5. *Auditory Function.*—In the face of the foregoing varied vestibular subnormalities and abnormalities, it is important to note that almost all of these twenty-seven patients showed normal cochlear function. The hearing was entirely normal in eighteen cases. Two patients showed slight impairment of each cochlea. One patient showed both cochleas dead—it appeared that possibly there were certain islands of hearing; this was the patient with diffuse central nervous syphilis.

SPECIAL COMMENT

From the apparent chaos of the foregoing observations, the following facts are clear:

1. A surprisingly large number showed vestibular impairment and abnormality. All of these vestibular deficiencies were of central type, with only one excep-

tion; the almost uniformly normal auditory mechanisms tend to confirm this.

2. One is impressed with the subnormal constitutional responses. After turning, the constitutional responses were subnormal in twenty out of the twenty-seven cases; in eight of these cases there was no pallor, sweat or nausea whatever. After douching, the constitutional responses were subnormal in twenty-one of the twenty-seven cases, and in twelve of these cases there was no pallor, sweat or nausea whatever.

3. Mr. L. C., aged 35, after turning four times to the right was seized with his typical epileptic attack. He did not draw the head in any particular direction. He was quite unconscious; at first he gazed straight ahead with a blank expression, then became pale, and then markedly cyanosed. After recovering consciousness, he stated that he had felt the attack coming on almost at the beginning of the turning.

4. Miss B., aged 25, daughter of an intelligent physician who has observed her closely, showed distinctly impaired vestibular responses both to turning and to douching. In spite of the subnormal vestibular impulse, she manifested terror after turning or douching. We attempted to reassure her, but it was difficult to secure her cooperation, although she was not only intelligent but most willing to help. Finally she said: "The reason for being frightened is that each time you turn me or douche my ear, I feel just as I always do before I have an attack." She had no attack; but on repeated tests over several days, each vestibular stimulation produced her aura.

5. Mrs. O. H. T., aged 47, after three and one-half minutes' douching of the right ear had a "spell"—however, not the same as her usual attacks. All voluntary muscles relaxed; respiration was rapid; there were no convulsive movements. The patient was apparently unconscious, but afterward stated that she did not think she had been completely unconscious but only felt extremely weak and unable to speak. This state of collapse was not a vestibular phenomenon in the usual sense; it was decidedly different from a state of shock—in fact, there was a singular lack of constitutional responses. Although the douching had been continued three and one-half minutes, there was no pallor, sweat or nausea. Later, douching the left ear produced another "spell"; she did not lose consciousness, but became flaccid and relaxed—not so marked as after douching the right ear.

6. F. R., a boy, aged 12, was placed by Dr. Robert Bárány on a board attached to the turning chair. The patient lay on the right side and was turned to the right. After the turning, the patient exhibited a fit in which his legs were drawn up and his body and head were bent downward, exactly in the vertical place in which the semicircular canals had been stimulated. He "doubled up like a jack-knife." He did not lose consciousness, but he was not mentally clear for a considerable period afterward.

7. I observed N. R., a boy aged 10, in three attacks. In each instance the head was drawn backward and there was a large nystagmus; this nystagmus on one occasion was a pure vertical upward; then on two other occasions it was upward and to the left, with an almost equally quick movement downward and to the right. The parents stated that this nystagmus has been present in each of the hundreds of attacks that they have observed since the onset of his epilepsy at the age of 2.

No conclusions, even tentative, should be drawn from the foregoing. We must bear in mind that perhaps the next twenty-seven patients might show perfectly normal responses to vestibular tests. However, the phenomena suggest that the fairly well known vestibular mechanism is connected with the unknown mechanism through which epileptic phenomena are produced. It seems possible that neurotologic study of a very large number of epileptic patients might not only throw some light on the eternal problem of epilepsy but also bring forth information concerning the basic physiology of consciousness.

ABSTRACT OF DISCUSSION

DR. HUGO A. KIEFER, Los Angeles: This work is absolutely new. When one gets into the subject of epilepsy he is impressed with the magnitude of the subject—there are so many different types, there are so many different causes, so many different precipitating factors, such a complexity of symptoms. When one tries to seek one cause, the problem becomes one of exceeding difficulty. Some of the results the author has shown us are certainly very startling. They are quite different from what we have been accustomed to read in textbooks. When one considers the abnormal reaction to stimulation of the vestibules that has been found in almost all the cases mentioned, one cannot but be impressed with the fact that there must be some close association between the vestibular apparatus and epilepsy. No one would want to say at present, for instance, where the center of consciousness is located. I believe the old theory was that it lay in the cortex. The new theory is that it probably lies in the basal ganglions. We know the changes that take place in the cortex under the spell of unconsciousness. We know that there is an anemia of the cortex. We know that the anatomic changes that take place in some cases of idiopathic epilepsy in the outer layer of the cortex; namely, a gliosis. These things seem to controvert any conclusion that abnormality of the basal ganglions may be responsible for the production of this disease.

DR. WILLIAM F. BONNER, Wilmington, Del.: In a paper I read last October before the Association of Military Surgeons on the labyrinthine reactions in syphilis, I called attention to an epileptic in whom a brain lesion was discovered by means of the Bárány tests. The diagnosis of syphilis was made secondary to the discovery of the brain lesion.

DR. CECIL E. REYNOLDS, Los Angeles: Some of these cases presented baffling problems. In others, the nature of the pathologic changes had been definitely established at operation. Broadly speaking, the most striking thing was that the cases presenting established cortical lesions gave hyperactive responses, normal in quality, but those which were established as basal cases gave abnormal responses. In the case mentioned by Dr. Jones that Bárány investigated I had operated three months previously, and the man was better than he had been, but the horizontal turning induced a characteristic seizure. At operation I had found definite pathologic changes at the base. In several other cases in which I had found pathologic changes under the cerebellum, Dr. Jones found abnormal vestibular responses with perfect hearing. Three patients had their characteristic seizures when they were turned or douched, and as two of these were not subject to frequent seizures at the period of this examination, I think that this is a significant fact. Two of these were most probably toxic cases, and one of the patients is subject to almost daily petit mal attacks (sometimes more) ever since intensive arsphenamin treatment ten years ago. I cannot help feeling that he has posttoxic lesions in the brain stem. His responses to turning and douching are markedly abnormal, in addition to an attack being induced thereby.

DR. SAMUEL INGHAM, Los Angeles: The importance of this subject needs no emphasis, and studies that lead to any definite findings are worthy of serious consideration. One of the most baffling things in the subject of epilepsy at present is the absence of any constant objective findings.

The actual cause of the manifestations of epilepsy and the location in the brain where the explosion is set off are matters of theory. There is a good deal of evidence that the importance of the cortical centers has been overestimated, and that disturbances of the lower centers have been overlooked. The findings reported in this paper, i. e., abdominal vestibular reaction to standard tests, constitute a high percentage of objective evidence; probably higher than has been obtained from any other one method of study. Confirmation and further observations are needed along this line.

CATARACT EXTRACTIONS PERFORMED BY PROF. JOSEF MELLER OF VIENNA, 1919-1921

REVIEW OF TWO HUNDRED AND FORTY-NINE OPERATIONS *

HANS BARKAN, M.D.
SAN FRANCISCO

There are two good reasons for presenting this paper. The first is that the statistics of cataract operations performed by Professor Meller will show what can be done in the way of obtaining good results under the most trying circumstances imaginable. The other, to present an accurate statement of operative results obtained by one operator on a uniform material over a sufficient number of cases by standard methods. Recent literature has been entirely too full of loose statements regarding cataract results; statements which give visual results as, for instance 20/20 or over, and do not give the percentage of cases in which the vision was 20/200 or less; papers by inexperienced operators covering a small number of cases with unripe and hasty deductions, and finally, broad statements regarding the high percentage of excellent visual results obtained by the exclusive use of some one method without statistics covering the percentage of losses, or mention of the sequelae and incidents of the operation tending to produce poor results. We have yet to find an analysis of cases in either the Smith or the Barraquer [1] method, such as we may find if we go back some years and look over the very carefully prepared statements of Knapp [2] in 2,300 cases, of Haab in 500 cases, and of Noyes' [3] compilation of 10,661 linear extractions and a further 5,566 linear extractions at the hands of six skilful operators, as well as that of Ring,[4] who analyzed 1,032 cases of combined extraction and 1,123 of simple extraction at the hands of Knapp, Agnew, Webster, H. Derby, Schweigger and others. Parker's [5] paper, analyzing his results in 1,034 cases, and the thesis of Meyling,[6] analyzing the results of the clinic at Leyden in 1,058 cases, are the only recent papers bearing comparison with the analysis of cases of twenty and twenty-five years ago. In reviewing the cases of operation in Meller's clinic, I took from the very carefully prepared histories containing mention of every possible preoperative and postoperative incident only those in which operation was performed by Meller himself. About as many more operations as here listed were performed during the same period by his skilful assistants, A. Fuchs and Bachstetz. For the sake of a standard comparison, however, the records of Meller's operations alone were taken.

The conditions during the first year of this operative material were such as have seldom, if ever, obtained in a university clinic of such reputation. These conditions, owing to the postwar state in Vienna, were enough to discourage any but the most courageous operator. The material, never particularly intelligent or cleanly, was worse than ever. Patients had had no opportunity, time or money to keep their bodies in physical repair. No dental, nose or throat work, no treatment of skin diseases, was possible. Observing a nephritic or diabetic diet, in patients nourished on poor potatoes and sawdust bread, was out of the question. Many of them traveled long distances in emaciated condition with sunken eyeballs, due to malnutrition, arriving at the clinic in poor shape mentally and physically, old and decrepit people after the years of suffering and starvation. At the clinic they did not have the reception accorded them in former years. The food was not much better there than at home. The wards and the operating rooms were not heated, so that Meller often operated with icy hands. No gas was available; the trained helpers of former years were dead, sick or missing. There were no agar, no dyes and no possibility for a bacteriologic examination. The instrumentarium was old and in bad condition; good instruments had been used up. The instruments available were of poor nickel and poor edge. In spite of these conditions, work was commenced, and in a very short time the beds were again full of cataract patients who had, some of them, waited during the entire war years for the time to come when they could gain entrance to the hospital in Vienna.

TABLE 1.—*Methods of Operating*

Hess	180
Combined extraction	46
Preliminary iridectomy	2
Weber's loop	8
Lance incision	8
Simple extraction	3
Discission	2
Total	249
Uncomplicated cases, total	174
Cases in which good vision could not be expected	75
Vitreous loss, total	5%
Vitreous uncomplicated cases	1.34%

Of pre-operative attention to teeth, nose, throat, skin or general constitutional diseases, there was, and could be, very little. Teeth were not extracted, tonsils not removed; and although diabetic patients were first sent to the medical wards and an attempt made to reduce their sugar, any painstaking efforts to get the individual into good condition for his operation were out of the question. Bacteriologic examination of the conjunctiva, for reasons stated, was not performed. If the tear ducts were patent and no gross conjunctivitis existed, operation was promptly performed. Table 1 shows the method of operating. Whenever possible, the method of Hess (performed previous to Hess by Chandler of Boston, and Pflüger of Bern) was used.

TECHNIC OF OPERATION

The patient walks to the operating table, which is firmly anchored to the floor. The operator sits at the patient's right hand side, and therefore operates on the right eye with his left hand and on the left eye with his right hand. The assistant stands opposite the operator, and by means of his

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Barraquer: Phakoeresis, Am. J. Ophth. **3**, No. 10.
2. Knapp: Arch. f. Augenh. **23**, 1891.
3. Noyes: Tr. Am. Ophth. Soc., 1879.
4. Ring: The Combined Versus the Simple Extraction of Cataract, Med. Rec. **37**, 1895.
5. Parker, W. R.: Senile Cataract Extraction, J. A. M. A. **77**: 1171 (Oct. 8) 1921.
6. Meyling: Operaties aan de Lens van 1895 tot 1918 Vericht in de oogheilkundige Kliniek te Leiden.

thumbs spreads the lids apart. A nurse at the head illuminates the field with the Hess hammer lamp. Another nurse at the head stands holding the pledgets soaked in weak mercuric chlorid solution. The instruments are boiling at the left hand of the operator, and can be taken out and put back into a small sterilizer by the operator himself quickly and without lost motion. After cocainization with 4 per cent. cocain and finally a drop of 10 per cent., an incision embracing a liberal upper one third of the cornea and ending with a small conjunctival flap is made. This incision is made frequently with one forward and one backward sweep of the knife. Occasionally a third short stroke with the knife edge turned almost facing the operator is taken to cut through the conjunctival flap. The capsule forceps are promptly introduced and as large a bite as possible of the anterior capsule taken. Meller spreads the arms of the forceps apart so that they often dilate the sphincter, obtaining a large piece of capsule. The upper lid is held with the thumb of the left hand, pressure is exerted by the index finger of the right hand against the lower lid, and the cataract is expressed. Meller expresses an amazing quantity of cortex by never relaxing on this pressure and thereby not allowing cortical masses to sink backward. No irrigation and no spoon to shovel out cortical remnants is employed. The iris is then reponated so as to obtain a perfectly round pupil. The conjunctival flap is stroked over the cornea, the base of the iris is pulled out slightly by means of sharply bent Hess forceps, and the smallest possible basal iridectomy performed. Should some cortical masses still be in evidence after this procedure, massage is again employed, and occasionally a surprising amount of cortex is expressed through the basal iridectomy. The iris is again brought into position, the conjunctival flap folded into place, and the eye closed. A binocular mask or tin cups covering both eyes do for the dressing. The patient walks back to his bed, and if the anterior chamber is formed at the dressing next morning, he is allowed to sit on a chair with the unoperated eye open. In uncomplicated cases the patient is discharged in from ten days to two weeks, at which time visual results are recorded. He is asked to return four weeks afterward for the estimation of his permanent glasses.

TABLE 2.—*Fundus Lesion and General Complications*

Number of Case	Condition	Vision
Men		
1	Toxic amblyopia with central scotoma	6/36
5	Senile atrophy, optic nerve	6/18
53	Fresh choroiditis and vitreous opacities	6/60
64	Optic atrophy, postneuritic	fingers, 1 m.
83	Deafness, hemiplegia, senility	??
89	Von Recklinghausen's disease, with previous retinal hemorrhages	6/18
90	Amblyopia, toxic	6/36
114	Nephritis, chronic, and arteriosclerosis	6/8
124	Cataracta nigra	6/12
130	Amblyopia exanopsia	6/24
121	Myocarditis with beginning decompensation	6/18
12	Glaucoma, chronic	fingers, 1 m.
43	Heterochromia iris, with precipitates	6/18
23	Retinochloroiditis, old, central	6/60
68	Atrophy, nerve, postneuritic central scotoma	6/12
81	Retinochoroiditis, central	6/60
105	Diffuse chorioretinitis	6/12
125	Senile macular changes, disk pale, inversion of vessels	6/60
136	Choroiditis, probably tuberculous	6/18
17	Central macula corneae	6/24
19	Subluxation of lens	fingers, 1 m.
30	Nystagmus, congenital	6/24
80	Chronic iridocyclitis, tuberculous	6/60
88	Chronic iritis	6/8
106	Nystagmus, atrophic iris	L. F. and P. in 1 m.
92	Adhesions, iris to lens	6/18
Women		
15	Tremulous iris	6/8
51	Cataracta accreta calcarea	6/18
71	Tatooed scar, cornea; optical iridectomy	6/18
73	Incipient zonular opacity, cornea; old macula; old iridocyclitis	fingers, 0.5 m.
80	Macula corneae; marked irregular astigmatism	6/24
94	Central macula myopia gravis	6/60
44	Heterochromia	6/18
43	Glaucoma, chronic	6/18
45	Glaucoma, chronic	6/9
89	Glaucoma, chronic	6/60
16	Mental depression	?
32	Mental confusion	6/60 ??
35	Cataracta nigra	6/36
46	Cataracta nigra	6/12
69	Cataracta nigra	6/12
17	Choroiditis disseminata	6/36
49	Nephritis, chronic	6/12
60	Macular changes, senile	6/12
65	Central choroiditis; retinal hemorrhages; central scotoma	6/36
66	Atrophy, nerve; choroiditis disseminata; vitreous opacities	fingers, 0.5 m.
77	Central choroiditis with central scotoma	fingers, 3 m.
82	Central choroiditis with vitreous opacities	6/24
99	Central choroiditis with central scotoma	fingers, 1 m.
104	Temporal pallor of disk with central scotoma	fingers, 2 m.
109	Macula corneae; central myopia gravis	6/36

FACTORS GIVING THESE STATISTICS AN EXCEPTIONAL VALUE

1. Each patient, after having been examined with the utmost detail by the assistant, is presented to Professor Meller, who himself examines the patient the day before, or the morning of, the operation.

2. Every operation was done by Meller, to whose surgical judgment and skill it is not necessary to refer.

3. The material is composed of approximately the same type of individual.

4. The patients were seen daily and the eyes dressed by men of experience.

5. Every postoperative complication arising was seen by Meller.

6. The final status of the case was observed and dictated by Meller.

7. Each case was from beginning to end so carefully described, and even incidents of practically no clinical importance so thoroughly recorded, that no misunderstanding could exist in the mind of any reviewer of these cases as to what had occurred and as to what the final results were.

RESULTS OF OBSERVATIONS

Two hundred and forty-nine cases came to operation. Of these, the uncomplicated cases total 174, the complicated cases, seventy-five. It is to be seen immediately that the percentage of complicated cases in this material is very high.

Table 2 gives the essential complicating factor in each case. These cases were selected from the others with this point in view; namely, that any condition existing before operation, which would make it impossible to secure good vision, irrespective of the type of operation, should be put into a separate table. A careful study of this table is urged. The unexpected good vision often in cases of small promise is surprising.

TABLE 3.—*Myopia Gravis (Seventeen Cases)*

Number of Case	Vision
Men	
25	6/8
28	6/12
34	6/6
35	6/12
79	6/18
112	6/24
Women	
13	6/12
25	6/60
31	6/24
40	6/18
63	fingers, 3 ft. (ret. det).
67	6/36
69	6/12
88	fingers, 6 ft. (vit. opacities)
94	6/60
101	6/12
109	6/36

Table 3 gives the results in the myopic cases. "Myopia gravis" from the case records means myopia exceeding 10 dioptèrs. There were seventeen such cases. Not an infection occurred, in spite of some

vitreous loss. Considering the widespread fundus changes found in almost all of them, the visual results are surprisingly good, with only one case a dead loss, owing to retinal detachment occurring two months after operation.

Table 4 lists the diabetic patients. Of these there were seven, running from 4 to 10 per cent. of sugar.

TABLE 4.—*Diabetes*

Number of Case		
Men		Vision
115		6/60
116		6/18
118		6/18
133		6/8
Women		
52		fingers, 3 ft.
97		6/12
107		6/36

Many other cases in this material showed traces of sugar, or a low percentage, and are not included in this statement. There was no infection, and the poor vision in several of these cases can be referred to fundus changes.

Table 5 shows the number of vitreous losses and the vision. I would point out that not one such eye was lost. A number of the patients had useful vision, and it will be noted that some of these had myopia gravis, and that most of these cases belong to the complicated series. Imagine such vision as these patients show if an operation, such as the Smith-Indian, had been used. The total vitreous loss was 5 per cent., and this in a material of which 18 per cent. can legitimately be called complicated in the sense of eyes likely to give trouble during operation. The vitreous loss in the uncomplicated cases equals 1.34 per cent.

TABLE 5.—*Vitreous Loss*

Number of Case Men*	Condition	Vision
25	Myopia gravis	6/8
41	Lens does not present Weber's loop	6/36
81	Lens does not present considerable pressure used	6/60
92	Traumatic cataract; adhesions, iris	6/18
118	Lens does not present pressure	6/18
Women†		
2	Hypermature lens, loss minimal	6/18
8	Vitreous with incision	6/12
25	Myopia gravis, slight loss	6/60
31	Myopia gravis, slight loss	6/24
43	Glaucoma, chronic; unruly patient	6/18
73	Old iridocyclitis; zonular opacity of cornea; corneal maculae	fingers in 1 m.
110	Minimal loss	6/18

* All belong to the complicated group, except Case 41.
† All belong to complicated series except Cases 2, 8 and 110.

Table 6 gives the main postoperative complications. Rupture of the wound occurred with relative frequency, but in only one case was it of consequence as regards the final vision. No great number of these ruptures occurred on any one specific day; that is, no particular number occurred on the first day out of bed, or on the first day of walking about the ward. The occurrence seemed to depend on the patient himself. Those with a chronic cough, and stupid, nervous and irritable people formed the candidates for rupture of the wound. The majority of these ruptures occurred in the first hundred cases of the series when skilled attention in the wards was not available, and very little control over the patient's actions could be observed. The iritis cases, numbering twenty-six, include every case which showed an adhesion of the iris to cortical remnants accompanied by ciliary injection. Many of these can scarcely be dignified by calling them a postoperative complication. Sixteen of them in no way disturbed the patient or formed the basis for subsequent disturbance of vision in the form of pupillary exudate. The other ten were marked cases of iritis, four occurring in patients with high grade diabetes, and two in severe chronic nephritis cases. The two acute infections requiring immediate enucleation occurred on the second day.

Table 7 gives the vision of the uncomplicated cases in three columns. The first column on dismissal two weeks after the operation, the second, the final vision ascertained between four and six weeks after the operation, and the third the vision at dismissal of those who did not return. Of these, quite a number did not return because of difficulties in travel and finances. No doubt many were satisfied with the vision obtained, and we see from the second column that they undoubtedly improved in a marked fashion from four to eight weeks after leaving. Many of those not returning therefore had much better vision later than is credited to them

TABLE 6.—*Postoperative Complications*

	Number
Rupture wound	27
Iritis	26
Iris prolapse	4
Glaucoma	2
Vitreous in wound excised	1
Infections, acute, enucleation	2

in Table 3. They may have obtained glasses in their home, or their other eye remained with good enough vision so that its use was satisfactory enough and a return to the clinic not thought to be of particular advantage. When one studies the first and second columns, one can readily see that those not returning for final vision, in the third column would, if they had returned, swell considerably the number of the final visions, second column, of 6/12 or over. This conclusion is justifiable when one notes the large number of cases in the first column below 6/12 and the relatively few below 6/12 in the second column, and how, in the second column, the number of those

TABLE 7.—*Final Vision; Uncomplicated Cases; Total*

	Vision on Dismissal Column 1	Vision Final Column 2	Vision on Dismissal and Not Returning Column 3
6/5	1	5	1
6/6	14	32	3
6/8	9	20	5
6/9	6	15	1
6/12	49	23	17
6/18	43	9	15
6/24	12	4	3
6/36	15	2	7
6/60	7	1	2
Fingers, 3 ft.	8		
Fingers, 2 ft.	1	(6/12 on discission)	
Fingers, 20 ft.	2	(6/12 and 6/18 on discission)	
L. P. P. N.	1	(6/18 on discission)	
L. P. P. N.	1	(Enucleation beg. atrophy)	
Acute infection	2	(Enucleation)	

over 6/12 has increased in comparison with the first column, and necessarily from those below 6/12 in the first column. In the first column nearly one half of the cases fall into the group of 6/12 or better, two weeks after operation, a most striking fact. In the second column, ninety-five out of 111 have vision of 6/12 or better. Of these, only two have this increase over their vision on dismissal by virtue of a

discission. One of the cases was raised to 6/18 from fingers at 2 feet; another to 6/18 from perception of light.

It can be safely stated that, if discission had been performed, the twenty-three cases in the second column of 6/12 and the sixteen cases below 6/12 would easily have fallen into the group of 6/9 in the first case, and 6/12 or better in the second. As most of the patients were satisfied with 6/18, and as many of them had an unoperated eye of 6/18 or better, discission was not called for in this type of material. One notes also almost without exception that the patients dismissed with 6/12 and 6/18 move up into the 6/9 or 6/6 column when returning four weeks afterward. It was found that in 81 per cent. of all cases a clear view was obtained of the fundus at dismissal, and that there was a description of the fundus in these, showing in a striking fashion that there was present in this percentage a clear hole through cortical remnants or an entirely clear pupil. This can be traced to the consistent use and the perfect use of the capsule forceps. Even when considerable débris remained at operation—which was not often—a remarkable amount of absorption had taken place in two weeks, owing to the fact that the epithelium of the anterior capsule could not proliferate over the capsulectomy area, and that the aqueous therefore had constant opportunity to exert its action on such cortical débris as was still enclosed in the capsule. The use of the capsule forceps also rendered unnecessary many discissions that would undoubtedly have had to take place had the cystotome been used. Only in the myopic cases does this advantage of forceps over cystotome not always apply, for in these there is sometimes epithelium on the posterior capsule which thickens and forms an obstruction to good vision so that in these cases the effect of the capsulectomy forceps is sometimes less marked. Among the visions of less than 6/60 we note fingers at 3 feet eight times. These cases were as follows:

1. A very unruly patient during operation; extraction with total iridectomy. At the first dressing there was chemosis of the flap; the wound edges were gray, and there was marked iritis. The second day there was hypopion. The patient was discharged with slight ciliary injection and a dense pupillary membrane.

2. Myopia of 10 diopters, with a Hess extraction. There were hyphemia and slight iritis, with considerable cortex during healing. The patient was discharged with considerable cortex and ciliary injection, and did not return.

3. Hess extraction was performed without operative or postoperative incident. The patient was dismissed with considerable cortex, and did not return.

4. Hess extraction was performed; the iris showed a tendency to bulge into the wound. There was a slight prolapse of the iris the third day. There were iritis, hyphemia, and organization of the cortical remnants, with marked ciliary injection and dull cornea. The patient was dismissed with an organizing pupillary membrane and subacute iritis.

5. Hess extraction was performed in a patient with chronic bronchitis. There were slight hemorrhages about the nasal edge of the wound several times, and on the eleventh day there was considerable blood in the anterior chamber.

6. A patient, aged 87, in poor physical condition, had had the sac removed four weeks before operation. The operation was a Hess extraction without complications. Two days later, a violent iritis and profuse hypopion occurred. Milk injection seemed to stop the process short of its usual course. The patient was dismissed with a pupillary membrane and slight hypopion.

7. The Hess operation, without incident, was followed by iritis, deep chamber hyphemia from the hemorrhage of the iris vessels, secondary glaucoma, and occlusion of the pupil. The patient was dismissed against advice with a mixed injection, dull cornea, deep chamber, discolored iris, pupil small, synechiae numerous, and pupillary membrane; he did not return.

8. The Hess operation was performed on a man, aged 75, whose tear sac had been excised; prolapse of the iris occurred on the second day after excision. The nasal pillar was pulled upward; there were blood and a small amount of cortex in the pupil on discharge.

Five of these eight patients were never heard of again. Three of them returned, two with vision of 6/18 and one with vision of 6/24. The remaining patients with vision below 6/60 were given serviceable vision by discission, as noted in Table 8. Three eyes were lost: one was enucleated because of beginning atrophy following iridocyclitis and two removed because of acute infection occurring on the second day after operation.

In summing up the final vision and considering the uncomplicated cases first, we can fairly say that the results are surprisingly good. I say "surprisingly" advisedly. With the material and conditions as they were, it is safe to say that any method aiming to extract the lens by pressure or pull or both combined would have resulted in a large number of unsatisfactory results. If one discounts altogether the material and the conditions, the statistics still remain exceedingly satisfactory, as can be seen by the fact that ninety-five out of 111 returning for final estimation of vision had 6/12 or better without discission. In judging these visions it must not be forgotten that the refractions from which these visual results were obtained were not in many cases particularly accurate. There was an immense amount of work to do, and many of the refractions in the first hundred cases, at least, were done by men not expert. The amount of attention which we in private practice devote to the utmost correction of our cataract patients was certainly missing. Refraction as done in private practice might not materially alter the 6/18 column or those lower, but might easily raise the 6/12 to 6/9, or the 6/9 to 6/8 in a fair number of cases.

Using the Hess method with anywhere near Meller's skill, we would not exchange these results for any method that might bring us a few extra 6/5 cases, and, just as certainly, judging from the statistics of the Smith operation in this country, increase our total losses and irreparably poor results by a good margin. Hardy [7] gives the results of forty-one cases, five months after the Smith operation, giving all due credit to Smith's unfamiliarity with his surroundings and the general psychology of operating under these conditions. There was vitreous loss in eleven, or 23 per cent.; iritis in twelve, or 34 per cent.; iridocyclitis in 36 per cent.; choroidal hemorrhage in five, or 12 per cent., and prolapse of the iris in nine, or 24 per cent. There was perception of light in six; amaurosis in four, and enucleations in three. Vision was not recorded, but bad, in four. One can scarcely comment. Fisher's [8] recently corrected statistics of Smith's operations in Chicago give 64.3 per cent. of thirty-one eyes as 20/30 or better. It was not stated what the vision of the remaining eyes was. If we further consider that discissions in twenty-three out of ninety-five of these cases would raise the twenty-three of 6/12 vision in practically all cases into the 6/9 or better column, I

7. Hardy, W. F.: Cataract, Am. J. Ophth. 5: 961 (Dec.) 1922.
8. Fisher, W. A.: Corrected Report of Colonel Smith's Cataract Operations, Am. J. Ophth. 6: 124 (Feb.) 1923.

believe that we should cheerfully perform these discissions in what would be 24 per cent. of our cases, and we should then be left with ninety-five cases out of 121 averaging 6/9 or better. And if we further increased our discissions by sixteen cases, we should raise our material in the 6/18 to 6/60 column to an average of 6/18 at least. That only two acute infections took place in this material is astonishing, and is a great tribute to the marvelously rapid and smooth operating of Meller.

In reviewing these statistics and remembering two years during which I had the privilege of being in Meller's ward assisting him in the great majority of operations, I feel that the teeth, the tonsils and the sinuses play a very minor part as direct agents in ocular wound suppuration, and that the skill of the operator, the handling of few instruments, and gentleness of manipulation are the decisive factors. Along this line of thought, let us go back a few years. In 1892, Haab performed 600 consecutive operations, with only one eye lost by infection. His statistics are very minute and painstaking. It is safe to say that, in his material of Swiss peasants, not every abscessed tooth was pulled before operation. In 1,284 extractions reported by Köllner [9] in 1906, the infections were 0.5 per cent.

In this article, no reference is made regarding attention to teeth, throat or sinuses. In 600 cases of Hess between 1905 and 1909 at Wurzburg, only one was lost by infection. I believe thoroughly in putting the patient in good general condition and in eliminating gross foci of infection. I would much rather, however, operate on a patient in good general condition with some abscessed teeth or foul tonsils than on a patient without tonsils and without teeth but old, feeble and with poor circulation. In Meller's series, the vitreous loss of 5 per cent. in the total number of cases, and of 1.34 in the uncomplicated cases, is small. Loss of vitreous is infrequent, partly because of the method of holding the lids apart with the thumbs. The patient does not feel the constant disagreeable pressure of the speculum; the lids can be released instantly, and between the various steps of the operation are allowed to be closed. The patient is requested to open his eye at various times, which he does easily and naturally, and only then are the lids separated by the thumbs. The whole process is one that eliminates, as far as is possible, the almost certain damage done by the well known "squeezer." Referring to some of the vitreous prolapses in other statistics, we find 1 per cent. in Haabs'; 5.8 per cent. in 10,661 compiled by Noyes, and for six operators with 5,566 extractions, 4.8 per cent. A. von Graefe had 2.8 per cent. in 699 cases. Meyling, reporting the extractions in Leyden from 1895 to 1918, a total of 1,058, records 6 per cent. with iridectomy in 315 uncomplicated cases, and 3.9 per cent. in 129 without iridectomy. Ring, in 1,032 cases of combined extraction, records 6 per cent., and in 1,123 of simple extraction, 3 per cent. Incidentally, he states that in the simple extractions iritis was less by 1.33; suppuration less by 0.61, and total failures less by 1.59.

Statistics are notoriously fallacious unless all the factors leading up to them are rated and apportioned equally, as they fall to one side or the other of the comparison, and one can see that unless simple extractions are done in an unbroken series including an average number of complicated cases, a fair comparison with results obtained in a series of combined extractions cannot be made. Usually, extractions with iridectomy are done in the more complicated type of case; and, naturally, in a great number of them more unpleasant incidents are reported, else, indeed, the judgment of the operator in having decided that these patients needed an iridectomy would come into question. Most of the statistics of the period quoted were brought together because of the contest between the adherents of the combined and those of the simple extraction. The Hess extraction eliminates this contest. It leaves the patient with a round pupil and cosmetically perfect eye. It avoids the unpleasant dazzling of the iridectomy as well as the disturbing effect of whatever astigmatism there may remain, which is decidedly less appreciated with a round pupil than it is with a coloboma. It provides, however, the essential of the total iridectomy; namely, the protection against iris prolapse. The peripheral iridectomy, lying as it does in juxtaposition to the apex of the incision, allows aqueous to flow through it and separate iris tissue from the lips of the wound. There were just two iris prolapses in the 180 Hess extractions, and two in the combined. An operator capable of performing a Hess extraction need not even in immature cases turn to procedures that are admitted by most operators of experience today to have too great a percentage of loss. A large capsule bite, persistent massage of the débris, and a peripheral iridectomy will yield, though perhaps with from 10 to 20 per cent. of discissions, as good an average visual result as any intracapsular operation, and much less actual loss. I believe firmly in exposing every fifth patient to the possible dangers of a discission rather than exposing every fifth patient to the dangers inherent in the Smith method. Discissions in modern days of asepsis cause trouble in only rare cases.

If the discission is done with two needles and subconjunctivally, the danger of infection and traumatism to the ciliary body is practically nil. Denser membranes can be removed as Hess was already in the habit of doing in Wurzburg in 1909, by opening the chamber with a lance and extracting with forceps, or, as he now does, by inserting specially constructed iris scissors into the anterior chamber, and cutting across the membrane. We must be more than fair in looking about for methods that will still further improve our cataract results. Our first consideration should remain the highest amount of good vision compatible with the least amount of danger. The time may come when a large series of the more radical methods of cataract operation is accurately worked up. Witness the literature involving more than 20,000 cases of the classic method thoroughly worked up and statistically checked. Not before such a time have the adherents of the intracapsular method, and particularly the Smith and Barraquer methods, any firm basis on which they may even enter a discussion. Their claim to fame lies in their relatively high percentage of 20/20 or better cases. They look with disdain on the columns of 20/30 and 20/40 vision. What, after all, do we mean, practically, with these figures? Our cataract patients do not spend the rest of their existence wandering around the streets with Snellen's charts carried 20 feet ahead of them by an obliging sandwich man. The man with 20/30 can as readily tell, at a block's distance that which is important to see, as for instance, the number of a street car, or the hand of a traffic officer, as can the man with 20/20. The man with 20/40 can at three quarters of a block's distance see these objects as well as the two others.

9. Köllner: Erfahrungen an 1,284 Kataract Extractionen mit Iridectomie, Ztschr. f. Augenh. **15**, 1906.

And all of them can read the newspaper. The method that gives the great majority from 20/20 to 20/40 and a small minority vision poorer than this will remain, I believe, the method of cataract extraction until some much safer method than the Smith-Indian at least, or the Barraquer is devised. This method may consist of a further evolution of such procedures as advocated by Knapp, Török and Verhoeff.

CONCLUSION

I cannot do any better than give, if not the words, at least the thought, expressed in Parker's recent papers; namely, that intracapsular procedures must stand the test of comparison with the combined extraction performed on patients selected with equal care. I should add that even the combined extraction will not quite stand the test of comparison with the extraction with Hess' peripheral iridectomy, and capsulectomy with capsule forceps. Lancaster's remarks, discussing Parker's paper, struck me as being particularly happy. He stated that the combined operation would take us by storm if it were now published for the first time. I am sure his remarks equally fit the Hess operation with Meller's results.

MODERN AIDS TO CATARACT EXTRACTION *

GEORGE S. DERBY, M.D.
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Although a number of writers have called attention to the advantages of paralyzing the orbicularis by the injection of procain before operating, it hardly seems as though the method were as widely adopted as it deserves to be. In my opinion it constitutes one of the greatest advances in the technic of cataract extraction that has been developed in recent times.

I began to use it more than two years ago, and it has proved so valuable that now it is a routine procedure in all cataract operations performed in my service at the Massachusetts Charitable Eye and Ear Infirmary. The technic of the injection is probably well known to you all. It is made slightly posterior to the point at which the vertical tangent of the external wall of the orbit meets the horizontal tangent of the lower orbital margin. The needle is introduced along the lower orbital margin close to the bone, so far that the injection will reach nasally to the line of the inner canthus. It is then withdrawn and introduced upward along the external margin of the orbit until the injection reaches the level of the upper margin of the orbital wall. I find that 2 c.c. of 2 per cent. procain, to which a small amount of epinephrin has been added, is enough to accomplish the desired purpose, 1 c.c. for each injection. In seven or eight minutes, the operation may be begun; in from ten to fifteen minutes, the full results of the injection are obtained; the lids are relaxed and remain so for an hour or more.

I have analyzed the last 100 cases of cataract extraction done in my service. The time covered runs from Dec. 1, 1921, to March 1, 1923, a period of fifteen months. These cases are unselected, but form the general run which come to the clinic and to the office. Naturally, linear extractions done on young patients are excluded, also patients having a dislocated lens and patients in whom the cataract was a complicated one showing synechiae and the like; one case of expulsive hemorrhage has also been excluded. Of the operations, I performed seventy-two, including thirty-nine private cases; twelve were done by Dr. R. C. Cheney, and sixteen were divided among the three successive senior house surgeons. In four cases there was loss of vitreous, 4 per cent. Two of these were house surgeons' cases. In one of the latter, extraction was carried out by the Török method, combining traction with the Kalt forceps, and pressure with the squint hook on the lower part of the cornea.

My own percentage of vitreous loss was two cases out of seventy-two slightly more than 2.5 per cent. In one of these, an earlier case, the patient was a bad actor who had a fluid vitreous, and I am confident that the injection was not properly given, for he succeeded in squeezing out the speculum. The second case went without incident until, during the toilet of the wound, a large bead of vitreous appeared without the slightest pressure on the part of the patient. I thought it was the beginning of a choroidal hemorrhage; but, as it neither advanced nor receded, I felt obliged to excise the vitreous and close the wound. Both of these patients obtained vision of 6/6 or better, a fact that is neither here nor there, but was gratifying to me. In every suitable one of my cases an attempt was made to extract in capsule by the Knapp method; perhaps a quarter succeeded. In nearly all cases an iridectomy was done. In two cases the lens was dislocated by the Barraquer apparatus and then extracted by pressure.

It is easy to make figures prove any point, and we cannot place too much reliance on them. It is very hard to compare series of cataract extractions on account of different methods used and the varying skill of different operators. Although the figures are not present to show it, I know that my vitreous loss with lid injection is very considerably less than in the days before we used it. Of other series I may be permitted to quote one or two. In 232 cases of combined extraction, Schoeler lost vitreous in 14, i. e., 6 per cent. Ring compiled the cases of various operators. In 808 simple extractions, there was a loss in 4.27 per cent. In 1,032 combined extractions, there was a loss in 7.23 per cent. In Dr. Barkan's report of Meller's series, the vitreous loss in the hands of a very skilful operator was 5 per cent. for all, and 1.34 per cent. for uncomplicated, cases, Parker's series gave a loss of 10.1 per cent. in 1,421 cataract extractions. Meyling (quoted by Barkan) gives 6 per cent. in 315 cases with iridectomy, and 3.9 per cent. in 129 simple cases. No two series are run on exactly similar lines.

Cases excluded by one man will be reported by another. I believe that vitreous loss, however, is more frequent in any form of extraction in capsule, and I wish to lay emphasis on the fact that a number of the patients in the series here presented were operated on in this way.

An indispensable condition for success in intra-ocular operations is perfect anesthesia. It is rarely that even an inflamed eye cannot be rendered anesthetic by local methods, and complete anesthesia will eliminate many complications. We use one or two drops of 10 per cent. cocain solution, in addition to the three or four drops of 4 per cent., over a period of ten minutes or more. In restless and fearful patients and in those with congested eyes, in glaucoma and intra-ocular foreign bodies and the like, when a general anesthesia

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is not to be used, we inject the orbit with 1 or 2 c.c. of a 2 per cent. solution of procain and epinephrin.

Various exact directions for injecting the orbit are given in the books and articles on local anesthesia. I find that it is simpler and less painful to introduce a 3.75 cm. needle either at the outer or the inner canthus through the already cocainized conjunctiva. It is passed backward and slightly toward the center of the orbit for 3.75 cm., and an injection of 1 to 2 c.c. of procain-epinephrin is made. In special cases, the injection may be made both at the inner and the outer sides. Perfect anesthesia results. Superficial subconjunctival injections do not seem to be in my hands as effective, and may interfere with the field of operation.

In a case in which the orbital injection is not used in cataract extraction, the corneal flap is always lifted, and 4 per cent. cocain is dropped on the iris before iridectomy is performed. With lid injection and complete anesthesia, it rarely happens that the patient has difficulty in looking down. When it does occur, injection of the superior rectus with procain or a stitch through the muscle, will remedy it. The effects of lid injection pass off in an hour, the local anesthesia somewhat earlier. As Colonel Smith has so well pointed out, the discovery of some procedure by which the extra-ocular musculature can be paralyzed for a week after operation would be a boon to humanity.

I suppose we all have cases in which the wound opens and prolapse takes place during the forty-eight hours after operation, and even later. In my experience this usually occurs in women, and is often due to vomiting induced by purely psychic causes. We have been unable to eliminate this complication, although various methods have been tried. Morphin, while effective in some cases, undoubtedly induces nausea in a certain percentage of persons. The "nausea mixture" used at the Knapp Hospital is of some value. In some cases we have used successive doses of chloral and bromid, the night before operation, the morning of operation, and another that night. I believe this also helps, but the accident still is a dreaded one and one to be seriously considered.

I believe that the best protection is in suture of the wound. I need not go into the history of the suture of cataract wounds. It is fully discussed in the recently issued volumes of the Graefe-Saemisch handbook. Kalt's method of corneal suture seems to have been most used. Ellett has two excellent articles on it in the American literature. There are certain disadvantages in the corneal suture which are overcome, I believe, by the method used for the last few years by my colleague, Dr. Verhoeff, and described by him. A very small flap of conjunctiva is dissected at the upper limbus and laid over the cornea. In the denuded area and about a millimeter above the limbus, a bite is taken in the sclera with a fine double-armed suture. The needles are then passed through the small conjunctival flap, the thread is wet, and the loop is then laid on the cornea and sclera so as to offer the least obstruction to the corneal section. After the lens has been delivered, the threads are pulled through the flap, tightened and tied, and we have a mattress suture holding down the flap.

With lid injection and complete anesthesia, the technic of this suture is much less troublesome than it was previously, the principal objection to it being that it renders the corneal section somewhat more difficult. I take it that most of us do not like to be diverted in making our corneal section by having to avoid threads, however well placed. This difficulty may be avoided by not completing the stitch until after the corneal section has been made. The conjunctival flap is dissected, and the stitch placed in the sclera. The ends are then laid back over the patient's upper lid and forehead. Two needle holes are now made in the small conjunctival flap with a slightly larger needle. The corneal incision and iridectomy having been made, the threaded needles are passed through the holes in the flap already made for them; these holes are found without effort, on account of their size and the smallness of the flap. The needle eye and its loop of thread pass through without resistance. The needles and loop are now disposed at one side, the lens is extracted, the threads pulled tight, and the stitch tied. Once the thread is pulled tight, the surgeon has complete control of the eye. Remaining cortical material may then be milked out at one side of the stitch, the anterior chamber may be irrigated if desired, and the toilet of the wound completed.

That many eyes are saved by the suture I have no doubt. Of course, this modification of the stitch cannot be used in certain cases, such as a dislocated lens.

I do not wish to be understood as advocating the stitch in all cases of cataract extraction, any more than I would advocate the same operation for all cases. I believe, however, that in certain cases it is indispensable, and I wish to stress the fact that with lid injection and adequate anesthesia, it is easy to complete the stitch after the corneal section has been made. I have done it many times without accident.

REPORT OF CASES

Case 1 is a good demonstration of the efficacy of the stitch:

CASE 1.—J. H., a woman, aged 74 years, was operated on in 1921. The operation was performed without incident in the early morning, and at the evening visit she was resting comfortably. During the night she had an uncontrollable attack of vomiting, and got rid of most of the vitreous, and the eyeball had to be enucleated. She then told me, for the first time, that she had been subject to attacks of vomiting all her life. In December, 1922, she decided to have her remaining eye operated on. A stitch was put in, and although she vomited slightly before leaving the table and again more vigorously after being put to bed, the wound held and healed perfectly.

Another case is also pertinent:

CASE 2.—A woman, aged more than 70, who had recently arrived in this country, was led into my office. She showed as marked a degree of blepharospasm as I have ever seen. It had existed for years. She had entropion of both lower lids, there were marked trachomatous scars of the conjunctiva and corneas, and the corneas were markedly vascularized. It was possible to make an examination of the eyes only after prolonged cocainization and with the use of lid elevators. The right eye showed an immature cataract, and the left, a mature one. The entropion was relieved by operation, but the blepharospasm persisted. The slightest attempt on my part to separate the lids was always met by an intense contraction of the orbicularis. The eyes were very deep-set and the palpebral fissures were very narrow. It was not without qualms that I consented to remove the cataract. The lids were thoroughly injected, a canthotomy was performed, an orbital injection of procain given, and a stitch passed through the insertion of the superior rectus to bring the eye down and forward. The extraction proceeded without incident, although there was a continuous blepharospasm in the other eye. The wound healed well.

CONCLUSION

By using these aids, we can operate in the ordinary case of cataract extraction with much greater security,

while in the difficult case the chances of ultimate success are much greater. Dislocated lenses may be removed with a nominal loss of vitreous, or with none at all.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BARKAN AND DERBY

DR. W. H. WILMER, Washington, D. C.: Rupture of the wound in 10.8 per cent. of the cases is high. The prolapse of the iris in four cases, 1.6 per cent., is also rather high, especially as two of the operations were performed according to the Hess method. Hess himself, in 600 cases, had 0.66 per cent. of iris prolapse. I feel that the patients themselves and the want of necessary postoperative nursing were alone responsible for these high percentages. Four patients were discharged with considerable cortex. Irrigation of the anterior chamber, in addition to the operator's method of expression of the cortex, might have made this unnecessary. Acute infection in two cases, or 0.8 per cent., would be somewhat high in normal conditions, but not for the circumstances confronting Meller. Under the best modern conditions, there has been an almost complete elimination of acute infection of the wound. I have not had any infection of the wound since 1915. I agree with Dr. Barkan in his view that focal infection plays a relatively minor part in wound infection; but I do feel that it has a most important rôle in later endogenous infection; for instance, in the very annoying iridocyclitis, that sometimes occurs about the tenth day. As one's time of operative experience lengthens, in private practice fewer normal cataract cases present themselves and more one-eyed people with all sorts of complications come for advice and operation. In cases of this type, preliminary iridectomy has, I feel, a distinct place in modern ophthalmic surgery. There is no mechanical reason why Meller's operative methods should not give as large a percentage of 20/20+ vision as the various forms of intracapsular operations, provided there is a needling in every case that requires it. Meller's results are excellent, in view of the conditions under which the operations were performed. The number of cases in which the vitreous was lost was very small even for the best operative conditions, especially as he did not drug the subjects or attempt to paralyze the orbicularis. During the last three years, my own percentage of loss of vitreous is 8.33 per cent., but this occurred in a series of operations in which the complicated cases formed 47.2 per cent. of the whole, and in no case was a good result interfered with. With an opportunity for later discission of the capsule, and a careful correction of the refraction, the high visual percentage would have been even greater. And I express my admiration for Meller, this great "master of fate," and his successes. A fairly large operative experience over a space of a number of years makes me feel that the patient's best interests are conserved by the operator's following the particular line of technic that he has thoughtfully selected and patiently perfected.

DR. CHARLES MAGHY, San Francisco: The worst complication that follows a cataract extraction with loss of vitreous is infection, either in the lips of the wound, or as a panophthalmitis. A mattress suture placed in the sclera and conjunctiva, by firmly closing the incision, would prevent vitreous from occupying the lips of the wound. In this way, some of the cases of infection might be prevented. In the cases of endogenous infection, it matters little whether or not vitreous loss has taken place. The author states that the cases were unselected, and that approximately one quarter of the operations attempted by the Knapp method were successful. I should like to ask Dr. Derby whether it has been his experience that in the cases in which he had trouble in dislocating the lens, the patients were chiefly under 50 years of age. In my opinion, it is much easier to dislocate the lens in a man of 60 than in one fifteen or twenty years younger, as in the former we have to overcome the suspensory ligament, while in the latter we frequently have to consider an attachment of the lens to the hyaloid. Another factor that should be taken into consideration in choosing the method of extraction is the type of cataract, the intracapsular operation being better adapted to cases of immature or hypermature lens. It would appear from Case 2 that blepharospasm is best controlled by paralyzing the orbicularis muscle. I know of no method that will prevent psychic vomiting. At Moorfields Eye Hospital, during nearly five years' service, I saw very few cases of loss of vitreous that could be attributed to vomiting. By far the largest number of patients who lost vitreous did so at the time of operation, by squeezing the lids together. In some cases, however, there was prolapse of the iris, especially in cases of simple extraction. I feel that had the orbicularis muscle been paralyzed and the mattress suture employed, many of these patients would have had an uneventful recovery. If we are willing to admit that vitreous loss in cataract extractions, even when moderate in degree, is more frequently followed by prolapse of the iris, prolonged healing, impaired vision and even infection, than in the cases in which no loss takes place, and also that, in spite of taking every precaution, both before and after the operation, a certain proportion fail because of an inflammatory reaction that sets in from three to five weeks after the lens has been removed, under the guise of a plastic iritis, the statistics set forth, by the author, showing a vitreous loss in two cases out of seventy-two operations, a loss of approximately 2.5 per cent., should be sufficient evidence to warrant the adoption of paralyzing the orbicularis muscle and the use of the mattress suture.

DR. JOHN O. MCREYNOLDS, Dallas, Texas: I feel that this suture is a most valuable adjunct to the safety of cataract extraction. It may be considered under three heads: 1. Does it do any harm? 2. Does it do any good? 3. Can it be easily introduced? With reference to the first, in fully nine tenths of my cases I introduce the sutures, and never have I seen the slightest infection or distressing reaction following. I have sometimes allowed them to remain for a month after operation without producing the slightest disturbance. Can it do any good? It certainly can do a great deal of good in many ways. It insures the quickest possible union. It enables the patient to get up more safely on the following day, and thus helps to prevent postoperative mania. It also enables the patient to leave the hospital a week earlier than would otherwise be judicious. I would say that there is one objection to the mattress suture. It means four introductions of the needle instead of two, and the tying of a mattress suture causes more puckering than in the method of Barraquer. The procedure that I use is to make a moderately long conjunctival flap. If one makes it too long, it places the line of incision too high underneath the lid. I do not like to have the threads in my way during the extraction of the lens. I generally prefer to insert the sutures at a later stage, because I want the eye free of threads when making the incision and extracting the lens. The suture is introduced through the lower conjunctival flap from without inward, and then passed through the upper conjunctival flap from within outward. If one happens to have a broad flap, there is no objection to introducing an additional suture. When I have reason to apprehend vitreous loss, I introduce the sutures before the extraction of the lens.

DR. KASPAR PISCHEL, San Francisco: I should like to confirm the advantages of paralyzing the orbicularis muscle before cataract operations. I saw this method first three years ago at Axenfeld's clinic. He showed me the article by Rochat of Groningen, Holland, who had described this method as akinesia. Since then, it has become so popular abroad that when I was in Vienna last month akinesia was the routine preparation for all cataract operations at Dimmer's and Meller's clinics. For sutures I would suggest a material that will not scratch and will be absorbed in a few days. Such a material is furnished by rat-tail tendons. I have been using them for years in all conjunctival wounds.

DR. DORLAND SMITH, Bridgeport, Conn.: Statistics are always interesting, and often valuable, if we remember that there are many unavoidable sources of error and do not, therefore, take our statistics too seriously. The statistics presented in these papers offer a good illustration of this. The miserable conditions under which Meller had to operate seem to make his success the more remarkable, but there is one real exception to this which is apparent when we think a moment. His patients were grossly undernourished, and on that account there must have been a predominance of sunken eyeballs; and

we all know that a sunken eyeball is much less likely to lose vitreous and to develop iris prolapse or rupture of the wound than a prominent eyeball. This was an exceptionally favorable circumstance in this series of operations, and should be taken into consideration in measuring the value of the statistics. I cannot altogether agree with all of Dr. Barkan's conclusions. Of the many ways of successfully extracting cataract, Dr. Barkan has made an admirable report on one. But we must not forget the others, nor forget the fact that, however well a man may know and perform one operation, he will fail of his highest efficiency if he does not consider the possibilities of other methods of operation, or shuts his eyes to their advantages. I also want to repeat the plea made to the American Ophthalmological Society last year, that those of us who can do so with safety should make use of intracapsular methods, not in all cases, but in such cases and in only such cases as we can use them without more force than we have to use in the average von Graefe or Hess operation. And I believe that there are many such cases, if we take the trouble to learn how to pick them out.

DR. W. B. LANCASTER, Boston: Dr. Wilmer suggested that there are certain points in the operation at which different men will make different selections in formulating their technic. That is, there are several procedures that may, perhaps, be equally good. There are others, however, in which there is a great superiority in some one method. Irrigation is an important addition to the operation. The suture certainly comes under the heading of the class of procedure that some men will approve of and some men will not. It is decidedly to be rejected. It complicates and prolongs the operation, and adds comparatively little security. What does it protect against? It is said that it protects against prolapse of the vitreous. But that is a rather rare complication. I always use a large conjunctival flap, unless I make a mistake in making my incision. I do not mean extending far back, but a flap that extends all the way round. I start my incision in the conjunctiva and end it there, so that the whole wound is covered with conjunctiva. In that way I get such immediate closure that I tell the nurse to allow the patient to get up the first night, if there is any necessity; for example, any difficulty in voiding that requires getting out of bed. It gives me a great deal of satisfaction to hear that anesthesia is strongly approved, because for a long time I have been an ardent advocate of better anesthesia. I think that that is the most important advance we have made. I think that more troubles in cataract operation come from imperfect anesthesia than from all other causes combined. I use cocain instead of procain, and inject it under the conjunctiva and not into the orbit, except in exceptional cases. I made deep injection as a routine in a series of cases eight or ten years ago, but it did not seem to be necessary, so I gave it up in favor of superficial injection. It makes considerable difference where one makes the deep injection. Dr. Derby said that it did not matter whether it was the inner or the outer side of the eyeball. I have found that if we inject deeply into the orbit along the external rectus, we frequently paralyze the external rectus muscle so that the eye rotates toward the nose. This is awkward when one makes the conical incision. Then, in order to work on it, one has to rotate the eye outward with forceps. If one injects along the internal rectus, the eye will tend to rotate out. Furthermore, if one injects up and in so as to affect the superior and the internal recti, both, one does not have to tell the patient to look down; the eye rotates down itself and is much better under control. I do not make injection into the lids as a routine procedure. The profession should take into account another cause of prolapsed vitreous than the pressure of the orbicularis muscle, and that is, the pressure of the external ocular muscles. In some cases when the lids are held entirely away from the eyeball, but when the patient makes a squeezing motion, the eyeball recedes perceptibly into the orbit. In fact, many years ago Donders and others, studying the position of the eyeball in the orbit, showed that when the eye is closed, the eye recedes into the orbit.

DR. RODERIC O'CONNOR, San Francisco: The most important thing in cataract work is to know how the patient is going to behave when one comes to extraction, and I do not think one can know that unless one has done a preliminary operation of some kind. It is easy to think that patients are going to behave, but they fool one sometimes. I like a preliminary iridectomy, although in some cases I have performed a preliminary iridectomy according to Curran. In that way I get the effect of the Chandler operation and know what the patient is going to do. At the same time, I can regulate the size of the opening. I use an exceedingly useful precaution, and that is a stitch in the center of the upper lid, leaving an end 2 inches long. This helps a great deal as a tractor both in closing the lids and in the dressings. Another stitch I use below the cornea to keep the patient from looking down, thus lessening gaping of the wound. As to using a sharp knife, in my work in the Philippines I learned how to sharpen my own knives so that they really are sharp, and frequently I use the same knife for years. When time is important, a preparatory capsulotomy in the morning and extraction in the afternoon will allow one to finish the entire operation in a much shorter time than doing it all at once.

DR. ANDREW TIMBERMAN, Columbus, Ohio: We say that our ideals are reached; but have we an ideal in the cataract operation, and if so what is it? Are we to be satisfied with anything less than that ideal? If we were to put it to a vote we would all say that the ideal way to extract a cataract is in the capsule. It is only a question of whether it is safer to leave a part of the capsule in, or whether it is safer and better to extract the cataract in its capsule. I think the majority of us would say that the extraction not within the capsule for us today is the safer operation; but I voice the sentiment expressed here a few moments ago when I say that I think we shall have come to a sad day if the members of this profession and of this section give up the ideal of extracting the cataract within the capsule. We attempt with every device to make our operations safe, but I am quite certain we shall make a mistake if we do not pursue the different methods offered to us and try them—try to reach that perfection of technic which will prepare each one of us as members of our profession to do that operation, whether the operation according to Hess, as described in Dr. Derby's paper, whether the operation as done by Smith, or the operation performed by Barraquer.

DR. W. H. WILDER, Chicago: Dr. Derby's paper is valuable because it brings to our attention a means of making the cataract extraction a safer procedure, whatever method of operation may be employed. I have used this method of controlling the action of the orbicularis for two years or more, ever since I heard of it from Van Lint of Holland, to whom I think the credit belongs for first introducing it. I have found it eminently satisfactory, and practice it as a routine measure. I also combine it with the method of deep anesthesia. I do not know that Gallemaertz first suggested that method, but he advocates it—injecting deeply with a hypodermic needle, 3.5 cm. long, from 1 to 2 c.c. of 2 per cent. procain solution around the ciliary ganglion. If it is placed along some of the straight muscles, it blocks them so that the patient is quite powerless to look down or up or sidewise, according to the muscle that is blocked. But I feel certain from my own experience that it is of distinct benefit and has helped me greatly. We all know how frequently there is loss of vitreous if the patient gets a chance—he needs only one chance, and that lasting but a fraction of a second—to squeeze down on the speculum. Blocking of the orbicularis muscle is of very distinct advantage, and any one who tries it (it is a simple procedure) will observe that the patient has very much less control of this muscle than he had before the injection.

DR. WILLIAM ZENTMAYER, Philadelphia: Occasionally after such injections, an embarrassing complication follows. When one uses the speculum, it may not hold very securely, and is apt to fall out.

DR. ALLEN GREENWOOD, Boston: May I suggest that the proper placing of the sutures does not materially disturb the operative procedure. I have proved that to my own satisfaction. If one lays the threads to one side, one does not notice them again until one is ready to use them. Properly placed sutures also lessen the amount of postoperative astigmatism.

DR. HANS BARKAN, San Francisco: Dr. Smith spoke of the sunken eyeball. It is true that cases of that sort have a certain advantage; but when the eyeballs are too much sunken, they are a disadvantage. These sunken eyeballs are the kind found in patients who die of long continued malignant disease. The eyeballs are so far back that one can scarcely get the knife in and get the iridectomy forceps behind the lids. Dr. Lancaster spoke of the operation being called the Chandler operation. He is absolutely right. Chandler was the first man to do that type of operating. I called it the Hess operation in this particular paper because it is known as the Hess operation in the clinics of Europe where this work was done, and is called that to distinguish it from the complete iridectomies that Meller did. Dr. Lancaster also spoke of the use of the shovel being a part of the Hess operation, which is true; but it is not used in Vienna. During the last two years my brother and I have used the shovel, and it is amazing to see what a mass of cortex can be brought out by the Hess shovel. Statistics in the paper show that there was comparatively little vitreous lost, and I know that there was comparatively little squeezing, and that gives us a good deal of the vitreous loss. I think that the squeezing comes at the time we have the speculum in and when it comes out. If one operates without a speculum, with the assistant holding the lids with his thumbs, one has very little squeezing indeed. I think that with that precedure I could answer Dr. O'Connor's question as to how patients will behave. They will behave well, provided a speculum is not used.

DR. GEORGE S. DERBY, Boston: I am not sure that I have explained clearly how this suture is inserted. It gives a much firmer union than any additional stitch can give. We have all seen large conjunctival flaps, subsequent prolapse, and a bead of vitreous under the conjunctival flap. That cannot occur with this suture, which clamps the small conjunctival flap down on the sclera. In regard to Dr. Maghy's remarks about the dislocation of the lens in old and young people, I think Knapp brings out very thoroughly that it is easier to dislocate the lens in older people. We see a certain amount of faulty apposition of the wound surfaces when the mattress suture is not exactly put in place, but that all disappears by the second day. The astigmatism is decidedly less in these cases. In regard to what Dr. Lancaster said about not using sutures becauses he seldom sees the escape of vitreous, even if it happens very infrequently, I do think it is a great advantage to put in these sutures. Another advantage of putting in the sutures is that it is a preliminary procedure, and one can often tell from it how the patient will behave during the operation, and take subsequent precautions.

[NOTE.—See also letter by Lieut. Col. Henry Smith, under Correspondence, this issue.—ED.]

Spread of Venereal Disease in Siam by Plural Marriages.—The system of plural marriages, combined with the simplicity of divorce that prevails in most Far Eastern countries, is beyond doubt one of the most important agents in the spread of these diseases. This can hardly be considered with a view to any change. It is hardly the province of a public health officer to dictate the matrimonial policy of a country. It would most certainly be highly impolitic to attempt so to do. Under existing conditions it is, of course, possible for an infected man to injure any number of virtuous females who, under a system of monogamy, would in all probability escape such injury. It must be admitted that the marital state of the better class Eastern female is, perhaps, considerably improved over that of years gone by. There is a growing tendency on the part of the more modern Eastern man to limit his number of wives and to accord them greater personal freedom than heretofore. The low class female is no better off than she was a thousand years ago, and she is extremely fortunate who, as the result of her physical attraction, becomes an unofficial member of the family of a wealthy and more or less considerate personage. As to the unmorality of the lower classes, suffice it to state that it will take considerable more time, money and energy than any of the existing social organizations are spending before the average native will be convinced of the error of his ways.—R. W. Mendelson: *Am. J. Pub. Health* **13**:828 (Oct.) 1923.

SOME OBSERVATIONS ON IRIDOTASIS IN THE TREATMENT OF GLAUCOMA *

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The number of methods of treatment of glaucoma seems to be proportionate to the number of theories advanced as to the causation of the condition.

Uncertain as is our present knowledge of the pathogenesis of this singular eye trouble that we call glaucoma, it is little wonder that in attacking it we aim at its most prominent feature, increased intraocular pressure.

We may feel that if we have by some means succeeded in reducing this increased pressure, even for a considerable period, we have restored the eye to a normal condition; but such an impression is in many instances far from the truth, as everyone with much experience must have observed.

The conditions that operated to bring about the increased intraocular pressure may insidiously continue to affect the eye, even if the pressure is lowered by operation, and may be manifested by changes in the lens, the uveal tract, optic nerve and retina that ultimately destroy the sight. Such miscarriage in our treatment is probably seen more frequently in cases of noncongestive or simple glaucoma than in those of congestive, or the acute type, whose tension has been successfully lowered by operation at an opportune time.

Nevertheless, the immediate danger that we seem called on to combat is the continued increased intraocular pressure, and at the present time our therapy seems to be most deeply concerned with its reduction. But our methods of examination are more or less uncertain, and often we cannot feel sure that increased intraocular pressure exists. Again, we often cannot say that a tonometric reading is normal or abnormal. What may be normal for the eye of one person may be abnormal for that of another. This applies to cases of noncongestive or chronic glaucoma, those of the congestive or acute type being in a class about which there would be no uncertainty as to the abnormality of the tension.

The congestive type of cases, according to our present views, present positive enough indication for operative interference, and in these there can be no doubt of the value of operations. We all recognize the debt owed to Von Graefe, De Wecker and other pioneers in the treatment of acute glaucoma by iridectomy. But in the noncongestive cases, the indications for operative treatment are not so clear, and more careful examination is frequently necessary to determine whether operation is the wisest procedure.

Careful observation and record of the intraocular pressure as determined by the tonometer, its variations after use of miotics or mild mydriatics, careful charting of the visual fields, study of the region around the blind spot to determine central or paracentral scotoma, etc., are all necessary in order to discover the early stages of a so-called simple glaucoma.

What will guide us in determining whether or not operative treatment should be employed in early cases of noncongestive glaucoma in which tension is at no time very high? This question has formed the subject of many interesting discussions by ophthalmologists.

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

We seem to be a little more ready with an answer in recent years, since the introduction of more accurate tests for tension, the more careful study of the changes in the visual fields, particularly those in the central fields, and the modern operations that seem to offer more hope of success in this class of cases than does the time honored iridectomy, which is so valuable in the acute congestive form. It is my practice to resort to operation if the continued and reasonable use of miotics fails to keep the tension well within normal limits, or fails to hold in check the contracting visual fields, even if the central vision is normal.

The purpose of this paper is not to discuss the general subject of glaucoma, or methods of examination to detect it, but to present the results of its treatment in a small number of cases, by a certain method of operation that I think has not been very generally tried out, in this country at least, largely, I suspect, because of a certain prejudice or rather a feeling that it defies some of our cherished traditions in regard to the vulnerability of the iris.

When we consider the great variety of operations that have been proposed and practiced with varying results for simple noncongestive glaucoma, we realize the uncertainty of our operative therapy and the fact that the ideal operation has not yet been devised. Iridectomy, so valuable in recent congestive cases with a shallow anterior chamber, fails frequently in the mild noncongestive cases, unless from imperfect technic or some accident a cystoid scar results.

The observation that low tension frequently followed after badly performed iridectomies in which part of the iris remained attached to the wound, thus resulting in a cystoid cicatrix, prompted certain operators, Schlösser,[1] Herbert,[2] Holth[3] and Borthen,[4] to endeavor to bring about incarceration of the iris in a wound at the limbus under proper antiseptic precautions and in such a way that the prolapsed iris would be subconjunctival.

All of these operators claimed to get good results with their methods. Holth claimed that in his first series of forty-five cases of iridencleisis, 85 per cent. had good drainage and normal tension, and in a later series of eighty-seven operations, he reported that there were no bad results, and 86 per cent. of successfully filtering scars.

Borthen[4] varied the operative technic of Holth by a method which he called iridotasis, in which he performed no iridotomy nor iridectomy, but merely placed a small part of the iris beneath a flap of the conjunctiva. With this method, he performed fifty operations and obtained excellent results so far as drainage was concerned. Later,[5] he described a slight change in technic, consisting chiefly in an enlargement of the conjunctival flap, and excision of a small piece of iris, not including the sphincter.

Borthen thinks that the slight traction on the iris as it is drawn into the wound tends to draw the iris away from the cornea at points distant from the incision, and thus frees the iridocorneal angle. This suggested the name iridotasis.

My interest was aroused in this procedure years ago by the favorable comments of Harrower[6] and Roy,[7] who have used it in cases of glaucoma, with marked success. Since then, I have made use of it in a number of cases, and must admit, in spite of the prejudice I had against it at first because of cherished pathologic opinions about the tenderness of the iris, that it is an operation of merit if properly performed, and, so far as my experience allows me to judge, is no more dangerous than any other operation for glaucoma, and not as dangerous as some.

1. Schlösser, in Elschnig: Augenarztliche Operations-Lehre **1**: 894, 1922.
2. Herbert: Tr. Ophth. Soc. U. Kingdom **23**, 1903.
3. Holth: Ann. d'ocul. **137** (May) 1907; **142** (July) 1909.
4. Borthen: Arch. f. Augenh. **65**, 1909; **68**, 1911.
5. Borthen: Arch. f. Augenh. **69**, 1911.
6. Harrower, D.: Tr. Amer. Ophth. Soc., 1912; 1913; Arch. Ophth. **47**: 37 (Jan.) 1918.
7. Roy, Dunbar: Ophth. Rec. **25**: 129 (March) 1916; Late Infection Following Iridotasis, Arch. Ophth. **47**: 42 (Jan.) 1918.

TECHNIC

With slight differences, the technic that I employ is that described by Borthen. The same scrupulous antiseptic precautions are observed as in any operation in which the eyeball is entered.

Local anesthesia with 4 per cent. cocain solution is usually sufficient.

The conjunctiva is seized with small toothed forceps, high above the limbus and cut horizontally with Stevens scissors as in making the conjunctival flap for an Elliot trephining. The cut need not be made very long and should not extend too far down the sides; for a thick flap and one that will lie easily in place afterward without a suture is desired. With closed scissors as a dissector, or with a special blunt dissector, the middle portion only of the flap is separated from the sclera down to the limbus, which is easily reached. Care should be taken not to buttonhole the flap, and not to break up any more of the submucous tissue than is necessary to expose about 4 or 5 mm. of the limbus. The preparation of the flap differs from that described by Borthen, who prefers to make it narrower.

The limbus, having been reached, the eye is held downward with a fixation forceps by an assistant, while the operator, holding up the conjunctival flap with forceps so that he can see the place of entrance for his knife, passes the point of a keratome 1 mm. from the edge of the cornea into the anterior chamber only far enough to make an incision 4 mm. long. For this purpose, Borthen uses a special knife having a shoulder, so that it cannot penetrate beyond a certain point. The same precaution as to the direction of the keratome is to be observed as when making an iridectomy, only in this instance the knife does not enter the chamber very far, and in withdrawing it, the point of the knife should be turned forward toward the back of the cornea, so that the lens may not come in contact with it as the aqueous gushes out.

Through the small wound, with very delicate iris forceps, introduced closed, the iris is seized at its pupil margin and gently drawn into the wound, the operator making sure that its black, posterior pigment layer surface is exposed to view; in other words, that portion of the iris is turned over.

In order to insure this, if the iris prolapses on withdrawal of the knife, it may be replaced gently with an iris spatula so that it can be seized exactly at the pupil margin, and then brought out as desired. The iris must not be pulled too strongly with the idea of getting a large prolapse, as this will make such a small pupil that it may be covered by the eyelid.

If the cut is too long, the iris may slip back, but this is not likely to happen with a 4 or 5 mm. opening. Borthen recommends the use of atropin before the operation, so that the paralysis of the sphincter iridis will prevent a contraction and replacement of the iris. I have not followed this plan, as the iris after employment of atropin becomes thicker; and it seems more difficult to make the incision and accurately to seize the iris.

Immediately after the iris is properly in the wound, the conjunctival flap is replaced, and if properly made usually requires no sutures. If it shows a tendency to fall down, a small central suture will secure it.

Only the eye operated on is bandaged. Atropin is used the following day, and the patient allowed to sit up at the end of the second or third day. If the operation has been successful, more or less pronounced edema of the conjunctiva is observed when the eye is dressed on the day after the operation.

In the cases reported herewith in abstract, a careful study was made of the vision, fields, both central and peripheral, ranges of tension as shown by the Schiötz tonometer [8] before and after the use of miotics, appearance of optic disk, etc.

Unfortunately, it has been impossible to get recent reports, or to make recent examinations on all of the patients, and in some instances it has been necessary to take merely the report of the patient himself as to the condition of his eye.

REPORT OF CASES

CASE 1.—*Single operation.* E. G., a woman, aged 27, seen, April 27, 1914, with right vision 20/15 +, left 0, tension, right, 22 mm., left 50 mm., suffered from congestive glaucoma of the left eye, secondary to uveitis. An iridotasis was performed, Nov. 15, 1915, on the left eye, with good results. Congestion had almost disappeared within twelve days after the operation. One month later, the tension went up to 47 mm., and there was a large bleb (due to improper draining away into the surrounding subconjunctival tissue) at the site of operation. Pilocarpin was ordered. When seen seven months later, the eye was quiet and tension normal. Seven years later, the tension was: right, 22 mm., left, 24 mm.

CASE 2.—*Double operation.* P. Z., a woman, aged 55, seen, Nov. 27, 1915, had a congestive glaucoma of each eye. Vision was: right, 20/50, left, 20/100; tension, right, 15, left, 70 (a few days later, right 55). Iridotasis was performed on the left eye, November 29, with good result. A few days later, right vision was reduced and tension was very high. A posterior sclerotomy was performed on the right eye, December 6, and two weeks later an iridotasis was performed, with good results. Three months later, the right vision was 20/40, tension, 20 mm.; the left vision was 20/30, and tension, 25 mm.

CASE 3.—*Single operation.* Dr. J. T. M., a man, aged 53, seen, Dec. 20, 1915, had a noncongestive glaucoma of the right eye. The sight was limited to perception of hand movements; the field was much contracted. Left vision was 20/20 —; tension, right, 62 mm., left, 27 mm. An iridotasis was performed on the right eye, December 27, with good result. One week later, the tension was from 15 to 18 mm.

CASE 4.—*Single operation.* W. H. S., a woman, aged 62, first seen, March 29, 1907, was seen a second time, Feb. 2, 1917, this time with a congestive glaucoma of the right eye and a noncongestive of the left. The right vision was reduced to perception of fingers at 6 feet, the result, in part, of an old choroiditis. The left vision was 20/40, with moderate contraction of the fields. The tension was 90 mm., right. February 5, I trephined the right eye, and did an iridotasis on the left. Five weeks later, the tension was: right, 27 mm., left, 18 mm. Two years later, right tension was 22 mm., left, 15 mm. A recent report says the eyes do not bother her.

CASE 5.—*Double operation.* J. L. W., a woman, aged 72, seen for the first time, Aug. 28, 1917, when the right vision was limited to perception of fingers at 6 inches, and left vision was 15/200, with field much contracted, and the tension in each eye was 45 mm., underwent a double iridotasis, September 3. The reaction was slight. Nine months after the operation, the tension was, right, 10 mm., left, 22 mm. The left iris had pulled out of the wound somewhat, and a cataract had developed. No recent report has been received.

8. Tension is that with the Schiötz tonometer unless otherwise stated.

CASE 6.—*Single operation.* F. A. H., a man, aged 62, seen, April 4, 1918, had a double noncongestive glaucoma. Vision was: right, 20/40, left, 0; tension, right, 23, left, 20. A few days later, right and left tension was 35. April 28, an iridotasis was done on the right eye with good results. The reaction was slight. Nearly five years later, the right vision was 20/50; the field was much contracted and tension was 30 mm. The nerve head was quite pale.

CASE 7.—*Single operation.* M. P., a woman, aged 78, seen, May 24, 1918, whose condition was diagnosed double noncongestive glaucoma, was able to perceive hand movements with the right eye; with the left, fingers at 10 feet (cataract). Tension was: right, 60 mm., left, 28 mm. May 27, I did an iridotasis on the right eye, and an iridectomy on the left. The reaction was slight. Two years later, right and left tension was 15 mm. The cataract was removed from the left eye, after which the left vision was 20/200, vitreous opacities were present. A report in January, 1923, says the patient has no trouble with the right eye and still sees with the left.

CASE 8.—*Single operation.* H. H. L., a man, aged 77, with a simple noncongestive glaucoma of the right eye, was seen, Sept. 28, 1918, at which time vision was: right eye perception of light; left, 20/50 (incipient cataract, left eye). Tension was: right eye, 70 mm., left, 20 mm. An iridotasis was done on the right eye with good result, tension being reduced to 15 mm. A letter received four and one-half years after operation says that the eye remains normal in tension.

CASE 9.—*Single operation.* F. W. L., a woman, aged 51, a patient for many years, for whom, in 1907, I did an iridectomy on the right eye for simple glaucoma, had a tension remaining low for years, but there was a gradual loss of vision. The blood pressure has been rather high, sometimes around 200. Jan. 14, 1917, she was found to have a noncongestive glaucoma of the left eye. At that time, the right vision was 0, left, 20/20, with contracted fields; tension, right, 60 mm., left, 55 mm. Oct. 4, 1918, I did an iridotasis on the left eye. There was a slight hemorrhage into the anterior chamber at the time of the operation, but this cleared up very shortly and the tension came down to 25 mm.; later to 20 mm. Nearly four years later, the vision was 20/30 and tension, 15 mm. There was no improvement in the fields. A rather large bleb was still present over site of operation.

CASE 10.—*Single operation.* F. D., a woman, aged 72, seen, Nov. 12, 1918, suffered from an acute congestive glaucoma of the right eye. At that time the vision was: right, hand movements; left, 20/30; tension, right, 90 mm., left, 20 mm. November 25, I did an iridotasis on the right eye, with good result. Four months later, the tension was 25 mm. Vision continued the same. A large cystoid scar lies over the operative field. There has been no recent report.

CASE 11.—*Single operation.* J. W., a woman, aged 59, had a noncongestive glaucoma of the left eye when seen, Dec. 9, 1918. The vision was: right, 20/20, left, 20/100, with contracted fields; tension, right, 27 mm., left, 70 mm. December 26, I performed an iridotasis on the left eye. The reaction was slight. Four months later, the left vision was 20/70; left tension, 18 mm. One year after operation, the left vision was 20/100; tension, 14 mm.; field, same. There was a large bleb at the operative site. No recent report of the patient's condition has been received.

CASE 12.—*Double operation.* W. F., a man, aged 35, seen, Dec. 11, 1918, suffered with double noncongestive glaucoma. The vision was: right, 20/200, and field much contracted; left, 20/50, and field moderately contracted. The tension was: right, 60 mm., left, 45 mm. Jan. 3, 1919, I operated on the right eye and, January 9, on the left eye, an iridotasis in both cases, with good result. Two months later, the right vision was: 20/50; left, 20/30. Tension kept within normal limits. March 5, 1923, right vision was 20/200, left, 20/50; tension, right, 24 mm., left, 26 mm.

CASE 13.—*Single operation.* G. W. S., a man, aged 67, with a noncongestive glaucoma of the right eye, was seen, Dec. 12, 1918. His left eye had been removed. Vision was 20/100, the field contracted. The tension, right, was 40 mm. Feb. 13, 1919, I did an iridotasis on the right eye, with good result.

Two weeks later, the left vision was 20/50, and tension, 19 mm. He has not reported since. A letter report, in April, 1923, says he still has fair vision and no trouble.

CASE 14.—*Double operation.* E. R., a woman, aged 56, seen, Feb. 11, 1919, had a double congestive glaucoma, with vision in the right eye, 0; in the left, perception of fingers at 3 feet. Tension was: right, 60 mm., left, 65 mm. I did an iridotasis on each eye, Feb. 17, 1919, with good result, but slightly more reaction than usual. The tension remained normal and the vision of the left eye improved to 20/50. Ten months after operation, right vision was limited to the perception of shadows; left vision was 20/50. Tension was: right, 20 mm., left 15 mm.

CASE 15.—*Double operation.* G. R., a woman, aged 64, seen, Sept. 13, 1919, had noncongestive glaucoma in each eye, had a vision in the right eye limited to perception of fingers at 2 feet, in a small island in the lower outer quadrant. Vision of the left eye, 20/30, with good field and the blind spot very slightly enlarged. Tension was: right, 47 mm., left, 27 mm. September 26, an iridotasis was done on the right eye with good result and slight reaction; but tension two months later was 40 mm. November 20, iridotasis was done on the left eye with good result, very little reaction, and tension, two weeks later, 15 mm. Three years later, the left field was still good, and tension remained low: right, 22 mm., left, 18 mm., but the central vision fell to 15/200, because of a cataract. This has not yet been removed.

CASE 16.—*Double operation.* J. C., a man, aged 62, had a noncongestive glaucoma of each eye when seen, Nov. 10, 1919. The right vision was 0, the left, 20/50, and the fields were contracted. Tension was: right, 60 mm., left 44 mm. An iridotasis was done on each eye, Nov. 11, 1919, with good result, the reaction being slight. One week after operation, the tension was: right, 10 mm., left, 20 mm. Three weeks after operation, the right vision was limited to perception of light; left, 20/50. Tension each eye was 20 mm. Dr. Johnston of Portland, Ore., who referred the case, writes, March 23, 1923, that right vision is limited to perception of light; left vision is 20/40. Tension is: right, 11 mm., left, 13 mm., and is sometimes as low as 8 mm.

CASE 17.—*Single operation.* J. W. B., a woman, first seen in 1905, at the age of 46, when she had absolute glaucoma of the right eye; tension, +3; vision, 0 (left, 20/30), six weeks later had the right eye enucleated. Fourteen years later, she returned with a noncongestive glaucoma of the left eye. The vision was 20/70, and tension, 50 to 55 mm. Six weeks later (Nov. 20, 1919), an iridotasis was done on the eye, with good result and slight reaction. The result was good for fifteen months, when a violent panophthalmitis developed, which she said started at the site of the iridotasis. It was of several days' duration when seen by me, and did not yield to treatment; evisceration was performed, enucleation being regarded as dangerous, and a specimen was not obtained. The infection was streptococcic.

CASE 18.—*Single operation.* A. M., a woman, aged 64, seen, Nov. 3, 1919, had a noncongestive absolute glaucoma of the right eye. The vision was: right, 0; left, 20/70. Tension was: right, 60 mm., left, 20 mm. I did an iridotasis on the right eye, November 24, with good result, but considerable reaction. The tension was somewhat reduced. Six months later, the tension was: right, 40 mm., left, 24 mm. There has been no recent report.

CASE 19.—*Double operation.* C. W., a woman, aged 49, had a noncongestive glaucoma of each eye. When seen, Nov. 20, 1919, the central vision was: right, 20/50, left, 20/70. Both fields were contracted, the left a little more than the right. The tension was: right, 60 mm., left, 80 mm. An iridotasis was done on the right eye, December 8, and on the left eye one week later. The result was good; the reaction, slight. Two weeks later, the tension was: right, 17 mm., left, 18 mm. In the right eye, the iris partly slipped back. Over three years after the operation, right vision is 20/40, left, 20/50; and tension is 12 mm. in each eye.

CASE 20.—*Single operation.* N. M., a man, aged 60, whose condition was diagnosed acute congestive glaucoma of the right eye, Nov. 29, 1919, had a right vision limited to perception of hand movements, and a left vision of 20/20. Tension was: right, 70 mm., left, 17 mm. Dec. 11, 1919, iridotasis was performed on the right eye, with good result. The tension fell to 12 mm. after the operation. A letter received over three years later says that the tension has remained normal since the operation, and there is some vision (amount not stated). The left eye remains well.

CASE 21.—*Double operation.* H. J. G., a man, aged 55, having double noncongestive glaucoma, was seen by me, Dec. 9, 1919, at which time the vision was: right, 20/30, left, 20/50, with the fields much contracted in each eye. The tension was: right, 60 mm., left, 65 mm. After the use of myotics, the right was 34 mm., the left, 35 mm. December 31, I did an iridotasis on the left eye, and a week later on the right eye. The result was good; the reaction, slight. One month after the operation, the tension was: right, 20 mm., left, 15 mm. The tension has remained low, and the fields have been fairly well retained. Three years after the operation, the right vision is 20/30; the right tension, 10 mm., the left, 22 mm.

CASE 22.—*Single operation.* E. A., a woman, aged 67, seen, Jan. 14, 1920, had a noncongestive glaucoma of the left eye. Vision was: right, 20/30, left, 15/200, with the left field much contracted. The tension was: right, 18 mm., left, 47 mm., which was reduced by myotics to 30 mm. January 26, I did an iridotasis on the left eye. The reaction was slight; the result, good. Tension became normal. Five months later, the left vision was 20/200. Since then, because of lenticular haze, the vision has fallen to perception of fingers at 8 feet. The tension remains low: right, 15 mm., left, 16 mm.

CASE 23.—*Single operation.* E. J. W., a man, aged 64, seen, Feb. 24, 1920, had a noncongestive glaucoma of each eye. At that time, the vision was: right, 20/40. The fields of each eye were contracted. Tension was: right, 42 mm., left, 45 mm. An iridotasis was done on the right eye, March 25, with good result. Tension became normal. Two months later, right vision was 20/30, left, 20/30; tension, right, 14 mm., left, 45 mm. June 28, I did a trephining of the left eye. Tension became quite low (8 mm.), persisting so for some time. Over three years later, April 9, 1923, a letter from Dr. C. E. Smith of DeKalb says that the right vision is 15/50, the left, 15/30; the right tension, 13 mm., the left, 6 mm.

CASE 24.—*Single operation.* E. G. B., a man, aged 40, who had a myopia of 10 diopters, a posterior staphyloma, rather advanced choroidal changes and a congestive glaucoma, was seen, April 2, 1920. The vision was: right, 11/200, with the field half its normal size, and the blind spot twice its normal size; left, 0 (due to an old metastatic (?) choroiditis). The tension was: right, 50 mm., left, 20 mm. April 13, an iridotasis was done on the right eye. The result was good; the reaction very slight. Four months later, the tension was 17 mm. At this time the left eye was enucleated. Eighteen months after iridotasis, the eye was unchanged. The tension was 22 mm. Thirty months after operation, there was still no change.

CASE 25.—*Single operation.* J. S. A., a man, aged 47, whose condition was diagnosed as double noncongestive glaucoma, was seen, May 11, 1920, with a right vision of 20/50, left, 20/50. The fields were moderately contracted, the left more than the right. Tension, right and left, was 57 mm. each. June 7, an iridotasis was done on the left eye, with good results. The tension became normal and remained from 17 to 20 till the patient was last seen, two and one-half years later. The right eye was trephined, September 17, and its tension came down and has remained same as the left. When the patient was last seen, in January, 1923, the right vision was 20/40, the left, 20/50; tension, right, 18 mm., left, 18 mm.

CASE 26.—*Single operation.* I. R., a man, aged 58, whose condition was diagnosed as right congestive glaucoma and left anophthalmos (old absolute glaucoma), and whose vision was 20/100 and tension 47 mm., when seen, July 27, 1920, underwent iridotasis, August 25. The result was good, the reaction very slight; but gradually, although the tension has

never been above 17 or 18 mm. in the last two and one-half years, the vision has fallen to 15/200. Feb. 24, 1923, the tension was 17 mm.

CASE 27.—*Double operation.* J. A. L., a woman, aged 62, with double noncongestive glaucoma, Sept. 30, 1920, had a right vision of 2/200, left, 20/30; tension, right, 40 mm., left, 35 mm. October 19, an iridotasis was done on the right eye, and three days later on the left. In each case, the result was good, and reaction very slight. Two weeks later, the tension was: right, 14 mm., left, 12 mm. Three months after operation, the right vision was 2/200, the left, 20/30; tension, right, 16 mm., left, 14 mm.

CASE 28.—*Double operation.* G. S. S., a man, aged 65, who had double noncongestive glaucoma, when seen, Jan. 18, 1921, with a right vision of 20/20, left, 20/70, with right field contracted and left field much contracted, and tension, right, 31 mm., left, 33 mm., underwent iridotasis of the left eye, January 22. The iris was fragile, and some blood escaped into the anterior chamber. The eye cleared quickly and vision soon returned to 20/20. Two years later, vision was 20/40, and tension, 15 mm. Dec. 12, 1921, an iridotasis was done on the right eye, and a similar fragile iris was found and blood oozed into anterior chamber. One month later, the eye was cleared, and the vision was 20/20; the tension, 24 mm. Three months later, this tension went up to 40 mm., and an iridectomy was done. One year later, the right vision was 20/30, and tension, 19 mm.

CASE 29.—*Double operation.* G. E. P., a man, aged 54, with a double noncongestive glaucoma, who was seen, Feb. 10, 1921, had a right vision of 20/50, left, 20/30. There was a scotoma coming very close to the fixation point in each eye. Tension was: right, 38 mm., left, 40 mm. Iridotasis was done on the right eye, February 14, and on the left, four days later. The result in the right eye was good, and in the left eye, good, except for some blood which escaped into the anterior chamber. This was absorbed in ten days, but there was slight reaction during this time. One month later, the right vision was 20/40, left, 20/40 +. Tension on the right was 15 mm., the left, 22 mm. Fifteen months later, the right vision was 20/50, the left, 20/50 —; the tension, left and right, 10 mm.

CASE 30.—*Single operation.* J. J. D., a man, aged 51, had a double noncongestive glaucoma. The right eye had been operated on (iridectomy) three years before. Feb. 13, 1922, the right vision was limited to perception of light only, the left was 20/40, with the field much contracted. Tension was: right, 47 mm., left, 55 mm. April 18, an iridotasis was done on the left eye, with good result, and very slight reaction. Three weeks later, the right tension was 26 mm. (pilocarpin pushed). The left tension was 10 mm.; left vision, 20/50 —. Ten months later, the left vision was 20/70, and tension normal, 18 mm.

CASE 31.—*Single operation.* D. E. R., a man, aged 63, who had a double noncongestive glaucoma (previous iridectomy of the left eye, in March, 1922), was first seen, May 5, 1922. Vision was: right, 20/15, left, 20/200; tension, right, 45, left, 53. May 9, I trephined the left eye, with good result, and two weeks later, performed an iridotasis on the right eye, with good result and very slight reaction. One month later, the right vision was 20/15, the left, 20/120; tension, right, 20 mm., left, 15 mm. Six months later, the tension remained normal in each eye.

CASE 32.—*Single operation.* W. H. S., a man, aged 71, seen, Dec. 5, 1921, with left noncongestive glaucoma, had no vision in the right eye, from optic atrophy. Vision in the left eye was limited to hand movements in the temporal field only. Tension was: right, 25 mm., left, 44 mm. May 11, 1922, an iridotasis was done on the left eye. The conjunctival flap was thin, and in healing lay quite flat; but gave good drainage, with slight reaction. One month later, tension was: right, 26 mm., left, 24 mm. There is no late report.

CASE 33.—*Double operation.* S. B. P., a woman, aged 61, had a double noncongestive glaucoma (absolute in the right eye). Vision, May 16, 1922, was: right, perception of fingers at 6 inches; left, 20/20 —. Tension was: right, 40 mm., left, from 25 to 27 mm. May 26, iridotasis was done on the left eye, and, June 5, on the right eye, with good result and slight reaction. One week later, the right vision was limited to perception of fingers at 6 inches; left vision was 20/30 —. Tension was: right, 12 mm., left, 13 mm. August 31, a report from Dr. Dorsey, Wichita, says that the right vision is limited to perception of light; tension is 35 mm. (McLean); left vision is 20/30; tension, 25 mm. (McLean).

CASE 34.—*Single operation.* T. D., a woman, aged 66, seen, July 29, 1920, with double noncongestive glaucoma, had a right vision of 20/30, with field contracted; left, 20/120, and field much contracted. Tension was: right, 30 mm., left, 40 mm. Oct. 31, 1922, an iridotasis was done on the left eye, with good result and slight reaction. Tension fell to 17 mm., and subsequently (six months later) to 12 mm. Vision also fell to 8/200. The right eye has remained unchanged. March 10, 1923, the right tension was 26 mm., left, 11 mm.

CASE 35.—*Single operation.* G. E. R., a man, aged 61, who had a double congestive glaucoma, Dec. 1, 1922, perceived light at times with the right eye. The left vision was 0. Tension in each eye was 100 mm. Dec. 4, iridotasis of the right and iridectomy of the left eye were performed with good result. The right eye cleared more quickly than the left, but a month later the tension in the right was 45 mm., in the left, 85 mm. Jan. 3, 1923, the right eye was trephined and the left eye enucleated.

CASE 36.—*Single operation.* N. F., a man, aged 59, had a noncongestive glaucoma of left eye, Dec. 1, 1922, the right vision was limited to light perception (old adherent leukoma due to penetrating injury many years before). The left vision was 20/30, with a large Seidel scotoma, but a good field. Tension was: right, 18 mm.; left, 60 mm. Jan. 1, 1923, iridotasis done on the left eye, with good result, and not much reaction. For a short time after the operation, there was a rather large choroidal detachment. This replaced itself in two weeks, at which time vision was 20/50, and tension, 15 mm. Three months later, a letter from Dr. Hornbogen says that the tension remains low.

SUMMARY

In this series of thirty-six cases, iridotasis was performed forty-eight times, twelve of the patients having had operations on both eyes.

Congestive Cases.—Ten of these operations were done for acute congestive glaucoma, and in seven of these the reaction following was slight, and the tension was reduced to normal.

The two operations in Case 14 were followed by some reaction, but the tension was reduced and was still normal ten months afterward.

In Case 35, a severe congestive type in an eye blind for over a month, and with a tension of 100 mm., the reaction was not as severe as in the fellow eye, also blind with high tension, on which an iridectomy was done. The tension of the eye undergoing iridotasis was reduced to 45 mm. A later trephining brought it to normal, but with no return of vision.

Tension had remained normal when last observed or heard from seven years after operation in one case; three years after in one; two and one half years in one; from ten to fourteen months in three; from three to four months in three; total, 9. Tension was not reduced in one case.

Noncongestive Cases.—Thirty-eight of the operations were done for chronic or noncongestive glaucoma, and in all of these except Case 18, the reaction following the operation was slight. In all of them the healing was uneventful, and the tension was reduced to normal or below.

In Case 18, an absolute glaucoma of the right eye, the tension was temporarily reduced, but six months later was 40 mm.

In Case 28, the tension was reduced and remained normal for one month. Three months later, the tension again rose to 40 mm., and iridectomy was done, since which time tension has remained normal.

Following four operations, there seemed to be hypotony in Cases 29 (double), 34 and 36, the tension becoming as low as 10 mm. and 11 mm.

In Case 36, the tension was not measured with the tonometer, but it seemed low by palpation, and there was detachment of the choroid, which was replaced one week after the operation. Late report says the eye is in good condition.

From reports received, there seems to be as yet no ill effects from the hypotomy noticed in the other cases.

Hypotony has persisted in one eye of Case 23, following trephining, tension at last report being 6 mm.

Tension had remained normal when last observed or heard from three years or over in seventeen cases; two years or over in three; one year or over in three; less than one year in twelve; total, 34.

Patient 17 developed panophthalmitis from probable streptococcus infection fifteen months after a successful operation, and neglected coming from the country to the hospital. All attempts to save the eye were futile, and it had to be eviscerated. The infection had apparently entered the eye through the old wound.

COMMENT

After forty-eight operations, tension was reduced for a varying time in forty-four, about 90 per cent. As to the permanence of the result, it is impossible to draw any conclusions, for the cases are not always available for further study, and reports received are frequently misleading. The patient may have poorer vision or may be blind, and still the eye may be draining well. He may still have fair vision and the tension may be increased.

When we reflect how varying are the conditions that may be present in cases of glaucoma, we appreciate how difficult it is to arrive at fair and logical conclusions as to the merits of any operation for its relief, even if we have numbers of operations, done by the same operator.

No definite standards of efficiency have ever been set for such operations, and possibly with our present knowledge cannot be. Speaking generally, ophthalmologists are probably agreed that any operation for this condition should be able to reduce the intraocular pressure to normal limits, should be reasonably simple so that the ordinarily skilful surgeon could perform it, and should expose the eye to the least possible immediate or remote danger.

It seems to me that the simplicity and ease of performance of this operation will be unquestioned by any operator who takes time to practice it. The only difficult step is the opening of the anterior chamber, which is by no means as difficult as that necessary in an ordinary iridectomy, a La Grange sclerectomy, or a trephining. The incision is so small that it is little more than a paracentesis, but it must be made with the utmost care.

As to its ability to bring about drainage of the anterior chamber, I think the accumulated experience of the men who have tried it will show that it is not lacking. Whether this drainage results from the drawing away of the root of the iris from the filtration angle, as Borthen maintains, or whether the prolapsed iris acts as a living seton along which the aqueous can escape into the subconjunctival cellular tissue are questions which await further study and solution. The study by Verhoeff[9] of an eye enucleated after iridotasis seems to show the necessity or wisdom of drawing out the iris sufficiently so that its sphincter will be out of the wound and there will be no likelihood of the anterior surface of the iris attaching to the anterior lip of the corneal wound. Such an adhesion would check the drainage desired.

As to the danger of this operation, either immediate or remote, continued experience will have to determine this.

Certainly, the immediate danger is small. The iris is not wounded, and for this reason there is less liability of hemorrhage than in any of the operations in which it is cut. This is a very important consideration in cases of hemorrhagic glaucoma, or in cases with high blood pressure, in which the iris vessels may be very fragile, as I found in some of my cases, Case 9 particularly. There is less danger of injuring the ciliary body than in trephining, cyclodialysis, or any of the sclerectomies.

The usual results observed, absence of pain, prompt reduction of tension, rapid recovery from the operation, with such very slight reaction (certainly in my experience less than that following other operations) all speak for a minimum of traumatism of the eye, compared to most other operations devised for the same purpose.

As to the remote dangers, I think many, like myself, at first hesitate to use it because of a traditional reverence for the iris and a feeling that its incarceration may spell disaster. Further experience and pathologic examination will enlighten us on this point. Late infection may occur after any operation in which the eyeball is entered.

If I were asked my preference in congestive glaucoma, I should say iridectomy, although iridotasis has served well in numbers of cases. In noncongestive cases, I can say that I think this operation has given me on the whole as good results as trephining or any of the sclerectomies, including La Grange or cyclodialysis. In certain cases, I think I should say I preferred it: viz., in those in which there is high blood pressure with indications of atheromatous blood vessels, in which there would be reason to fear that the iris vessels might be very fragile and would bleed easily with any iris cutting operation; and again in cases in which a previously performed iridectomy, trephining or La Grange operation had failed to accomplish the desired result.

It seems to me it should not be used in an eye that has a developing cataract, for the misplaced pupil and iris would add to the difficulty of the incision should a subsequent extraction be necessary.

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9. Verhoeff: Histological Findings after Iridotasis, Arch. Ophthalmol. **45**: 5, 1916.

Whole Time Local Health Officer.—The fundamental need is not for the development of numerous specialties, to be introduced into local communities independently, but for the establishment of an efficient, whole-time local health service through which the measures necessary for the benefit and protection of the public health may be conducted in logical sequence and in proper relation to one another. Until such a single definite program of local, state and federal health work is generally recognized and adopted, different agencies will continue to work at cross purposes, appropriating bodies will lack confidence and withhold support, the medical profession will be subject to constant irritation from many sources, and the general public will remain confused and skeptical.—W. S. Draper: *Public Health Rep.* **38**:2717 (Nov. 16) 1923.

INSULIN IN DIABETIC COMA, COMPLICATING PREGNANCY *

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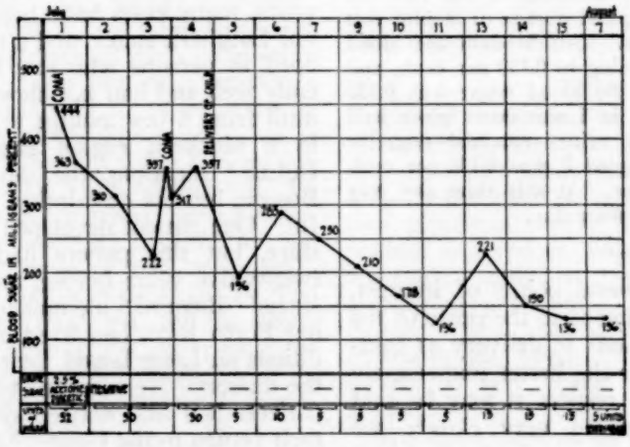
DETROIT

The efficacy of insulin as an antidote for diabetic coma has been sufficiently well established to prompt Joslin [1] to state that "deaths from diabetic coma are unnecessary accidents that can be avoided by sensible treatment. If the patients die from coma at the present time, it is a disgrace to the medical profession."

While the literature abounds in reports of cases of diabetic coma complicating various conditions, no instance has been found in which a well advanced pregnancy has had to be reckoned with along with the coma. The case here reported is of interest, therefore, because it deals with just this sort of situation.

REPORT OF CASE

Mrs. E. F., aged 42, Syrian, housewife, mother of five children, was brought into Providence Hospital, June 30, at 11 p. m., in a semicomatose condition. Her temperature was 97.4, the pulse was very weak and thready, with a rate of 100, and respirations were rapid, shallow and difficult. The family history was negative. The patient had always been well and able to conduct her household duties until two years before, when she began to feel weak and lost weight very rapidly. She had four or five miscarriages at two to three months during the year previous and the year following the onset of her trouble. A physician whom she consulted at this time informed her that she was suffering from diabetes, but she failed to take his verdict seriously and so neglected treatment, with the result that she had been gradually losing in strength and body weight. she became pregnant again in November, 1922, and was feeling quite comfortable without any untoward symptoms—and still without treatment—until three days before her entrance into the hospital. At this time she began to feel drowsy, her thoughts were confused, and she had considerable difficulty in respiration. This condition continued unabated until seen by her physician, Dr. R. L. Fellers, June 30, when dyspnea was so marked and acidosis so evident that she was immediately sent to the hospital.



Progress of case.

I saw the patient at 8:30 a. m., July 1. She was comatose, her breathing was distinctly of the Kussmaul type, and her breath reeked of acetone. Emaciation was marked. The temperature was 95 and the pulse 110, weak and thready. The pupils were dilated, and reacted sluggishly to light. The mucous membrane of the mouth was parched, the teeth were covered with sordes, and the throat was reddened and dry. The chest was narrow; there was marked muscular atrophy, and the skin was wrinkled and parchment-like. The respiratory excursions were very shallow. There was fairly good resonance throughout. The heart was not enlarged or displaced, and the apex beat was barely palpable. Auscultation revealed no adventitious pulmonary sounds; the heart sounds were faint and rapid. No murmurs were heard. The systolic blood pressure was 108, the diastolic, 80. The abdomen was enlarged to the size of a thirty-six weeks' pregnancy; the fetus was in the right position, floating; the cervix was undilated, and the presentation was breech. Fetal movements or heart sounds could not be made out. The obstetric examination was made by Dr. Walter E. Welz.

Glucose and sodium bicarbonate in 5 per cent. solution was immediately started by rectum, and 2 units of insulin, as a desensitizing dose, was given. A blood sugar estimation at this time showed 0.444 per cent. The urine was positive for acetone and diacetic acid, and contained 2.5 per cent. sugar. At 9:10 a. m., 10 units of insulin was given intravenously. This was repeated in an hour, and again at the end of another hour. The patient had so far shown no response. A blood sugar determination taken at 11:45 a. m. showed 0.363 per cent. Accordingly, at 12:20 p. m., 20 units of insulin was given intravenously. Within ten minutes the patient began to show a marked improvement in pulse and respiration, and by 1 p. m. regained consciousness sufficiently to ask for a drink of water. She had received in all 52 units of insulin before she was brought out of coma. She was now put on 5 unit doses subcutaneously at hourly intervals, and received eleven such doses. Sodium bicarbonate in 30 grain (2 gram) doses was given every three hours, and fluids were given ad libitum. She had a rather restless night, but remained conscious throughout, sleeping at short intervals. At 9:30 a. m. the following day, the blood sugar was 0.310 per cent. She was given 25 units of insulin because she still showed slight air hunger, was very restless, and her breath had a marked acetone odor. Within an hour the patient quieted down, but only for a short while, when she again began to manifest respiratory difficulty. The temperature was still subnormal and the pulse was still rapid, weak and thready. Insulin in 5 unit hourly doses subcutaneously was again started, and by the time she had received 30 units, her respiratory embarrassment had ceased and her general condition was decidedly improved so that the interval between doses was lengthened to five hours. Since the patient manifested some signs of hunger, she was placed on a 1,000 calory diet made up according to the high fat, low protein, low carbohydrate principle set forth by Newburgh and Marsh.[2] She had a fairly comfortable night, but toward morning she became restless again. The blood sugar at 9:30 a. m. was 0.2222 per cent. The urine was negative for sugar, but showed a trace of diacetic acid. Breakfast was refused. The patient was very restless, and by 11:30 a. m. relapsed into a comatose state. She was given 30 units of insulin intravenously, and by 3 p. m. had regained consciousness. The blood sugar immediately preceding the administration of the insulin was 0.357 per cent., and within an hour after consciousness was regained it was down to 0.317 per cent. The systolic blood pressure at this time was 98, and the diastolic, 86. She took her evening meal with apparent relish and rested fairly comfortably until about midnight, when she began to have typical labor pains at twenty minute intervals. These continued until 4:35 a. m., when the interval between pains decreased to five minutes. The patient was immediately transferred to the obstetric department. From 4 p. m. of the day previous until 5 a. m., July 4, she had received 50 units of insulin subcutaneously (given in 5 to 10 unit doses at periods of from two to three hours). Despite this almost constant administration of the insulin, the blood sugar this morning was 0.357 per cent. The urine, however, was negative for sugar, acetone and diacetic acid. Insulin was now given in 10 unit doses at hourly intervals until delivery of a

* Read before the Highland Park Physicians' Society, Oct. 4, 1923.

1. Joslin, E. P.: Insulin in the Routine Treatment of Diabetes, discussion at meeting of Association of American Physicians, May, 1923, abst. J. A. M. A. **80**: 1726 (June 9) 1923.

2. Newburgh, L. H., and Marsh, P. L.: The Use of a High Fat Diet in the Treatment of Diabetes Mellitus, Arch. Int. Med. **26**: 647 (Dec.) 1920.

living premature female child was made at 3:20 p. m. (The child died at the end of sixteen hours. No necropsy was performed.) The patient was very restless until about 10:30 that evening, when she quieted down and fell asleep. The insulin was given in 10 unit doses at four hour intervals until 6:30 a. m. The blood sugar at 8 a. m. was 0.1968 per cent. Only 5 units of insulin was given before the noon meal, July 5. The condition of the patient on this day was the best that it had been since her entrance into the hospital. Urinalysis was negative for sugar.

The blood sugar on the following morning, July 6, was 0.2857 per cent., but the urine showed no reduction with Fehling's or Benedict's solution. Ten units of insulin was given one-half hour before breakfast. This day showed still more improvement. July 7, the blood sugar being down to 0.250 per cent. and the urine still sugar-free, only 5 units of insulin was given, one-half hour before breakfast. The patient was put on a 1,400 calory diet based on the same principle as previously mentioned. Improvement continued unabated. The circulation was markedly improved. The patient was in excellent spirits. The same treatment was continued, July 8. July 9, the blood sugar was down to 0.210 per cent.; on the morning of the 10th, 0.178 per cent., and on the 11th, 0.136 per cent. The diet was increased to 1,800 calories a day, and the patient continued to improve in every way. She was gaining in weight, rested well, and was very comfortable at all times. On the morning of the 13th the blood sugar rose to 0.221 per cent., and dosage of insulin was increased to 15 units for the day. This brought the blood sugar down by the following morning to 0.150 per cent., and on the day she left the hospital the blood sugar was 0.136 per cent. on a dosage of 15 units in 5 unit doses given half an hour before each meal. The urine remained negative throughout. The blood sugar, August 7, was 0.136 per cent. The urine was negative for sugar. At this time she was receiving 5 units of insulin every other day.

COMMENT

While this case presents several points of interest, the most important is the question as to the cause of the severity of the symptoms previous to delivery as compared to the sudden change for the better immediately following parturition. In this respect it may be said that the abrupt change simulated very closely the response of a patient suffering from one of the toxemias of pregnancy to either therapeutic or spontaneous abortion. Whether or not the presence of the fetus had anything to do with the maintenance of the blood sugar at a high level is a question to be decided only by the reaction of the patient and her behavior subsequent to delivery. Incidental or not, parturition marked the turning point in the progress of this case to a successful termination.

There is one "lead" to be followed through, however, and that is the presence of a comparatively high renal threshold, as evidenced by the absence of sugar in the urine even when the blood sugar was as high as 0.357 per cent. One might easily incline toward the existence of a concomitant renal involvement, despite the lack of elevation of the blood pressure, yet substantiated somewhat by the presence of small amounts of albumin in the urine during the third and fourth days. The existence of this associated renal involvement may be assumed to have produced a toxemia of mild enough type to be masked by the more urgent condition, yet of sufficient severity to account for the failure of the relatively large quantity of insulin administered before delivery to depress the blood sugar and to relieve the patient completely of air hunger and acidosis. Further evidence which might throw added light on this problem not being available, this question must necessarily stand unsolved.

However, the fact remains that, despite the comparative recency of the discovery of insulin, its value to diabetic patients, particularly when moribund, has been proved beyond the least vestige of doubt.

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TROPICAL SPRUE

A CRITICAL STUDY OF CASES *

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Of forty-five cases of tropical sprue occurring in India, Leonard Rogers [1] reports a probable cure in only one, and no material improvement in twenty-six. Tropical sprue may be considered, therefore, a very serious nutritional and diarrheal disease. Nearly all the patients seen in the New York district have acquired and developed the disease in some foreign country where sprue abounds. But in the last ten years, many cases have been reported as originating in our Southern states, and a number of cases have developed in persons who had left a sprue district apparently well and had not shown symptoms of the disease until from a few months to many years after residence in a northern region supposedly free from sprue. DeLue [2] mentions the development of a case near Boston, but his description makes the diagnosis doubtful. One patient developed the disease in New Hampshire, but this patient had lived in North Carolina twenty-five years before, and had visited Florida once since.[3] Bovaird [4] mentioned a patient who, after leaving Porto Rico, had lived under highly favorable conditions on Long Island for two years before developing the disease. He recorded two other cases in which the patients had first noticed symptoms four months after their return to the United States. Bahr [5] reports a case that was seven years in developing, after the return of the patient to England, and Thin [6] reports a case that developed seventeen years after the patient's return to England. Moreover, a few of the patients with sprue come directly to us from sprue countries with the condition not diagnosed. It would seem, then, that some knowledge of sprue cases may be of considerable importance in this country, even to northern physicians.

Sprue is mostly insidious in its onset, often beginning with a slight occasional diarrhea in several successive seasons or years, and with later a sore mouth either accompanying the diarrhea or in the interim between diarrheal attacks. A recurring diarrhea of undiscoverable cause, with the gradual development of anemia and loss of flesh and strength, must be considered suspicious, even in the absence of sore mouth.

One of us (B.) has seen thirteen cases in New York, one from the Philippines, three from China, one

* Read before the New York Academy of Medicine, April 17, 1923, and the American Gastro-Enterological Association at Atlantic City, April 30, 1923.

1. Rogers, Leonard: Bowel Diseases in the Tropics, London, Oxford Medical Publications, 1921.
2. DeLue, F. S., in discussion on Bovaird, David: A Study of Tropical Sprue, or Psilosis, J. A. M. A. **77**: 758 (Sept. 3) 1921.
3. Wood, E. J.: Am. J. M. Sc. **110**: 692 (Nov.) 1915; Clinical Manifestations of Tropical Sprue, abstr., J. A. M. A. **70**: 1791 (June 8) 1918; The Recognition of Tropical Sprue in the United States, ibid. **73**: 165 (July 19) 1919; U. S. Naval M. Bull. **13**: 449 (July) 1919; J. Trop. Med. & Hyg. **23**: 201 (Aug. 16) 1920.
4. Bovaird (Footnote 2).
5. Bahr, P. H.: Tr. Soc. Trop. Med. & Hyg., London, 1914.
6. Thin, George: Psilosis or Sprue, London, J. and A. Churchill, 1897.

from Korea, one from Java, one from Cuba, one from Louisiana (the patient had formerly lived in Haiti), and five from Porto Rico. Four of these we had no opportunity to study, though we have the details of one, a fatal case with necropsy in Bovaird's series, reported by Barach and Murray.[7] We have not included this case in our series. In the other nine, there were four mild cases and five severe ones. Of the latter, two patients died and necropsies were performed, one is now cured, one returned to Porto Rico moderately improved and has been untraceable, and the remaining one is improving rapidly. Five of the patients came to us at about the same time last autumn, and gave us an opportunity to gain more data relating to the disease. In these five, we have made extensive mycologic studies.

It is not our intention to discuss the whole picture of sprue. But in our knowledge of this disease there are some points about which authorities differ, and we will give our experience in these regards.

THE BLOOD

In the literature we find varying ideas regarding the red cells and hemoglobin, Stitt[8] and Wood,[3] for example, stating that there is a high hemoglobin index, Low[9] that the index is about 1, and Barker,[10] Rogers[1] and Bovaird[4] that the index is low and secondary anemia the rule. Among our cases, in five of the seven patients who lived, the blood was that of a secondary anemia. In one it was normal. In the other one who lived and still suffers from sprue, whose condition is shown in the accompanying illustration, the hemoglobin index in July, 1920, was 1.15, with hemoglobin, 46, moderate poikilocytosis and marked anisocytosis. Now, three years later, the hemoglobin is 88 and the red cells, 3,900,000, the index being 1.13, with practically no poikilocytosis or anisocytosis. In the two patients who died, the index was high, and the blood showed characteristics of the blood in pernicious anemia. One severe case began with hemoglobin of 45 and an index of 0.75, but with improvement to hemoglobin, 65, and an index of almost 1.

The white cells are generally described as showing a leukopenia with a low proportion of polymorphonuclears. In our series, only two cases showed this picture, one a fatal case; the other patient is now improving. The latter gave a count of 5,200, with polymorphonuclears 44 per cent. in 1920; 4,900 with polymorphonuclears 72 in 1921, and 9,200 with polymorphonuclears 36 at the beginning of this year. In one fatal case in which there was a high hemoglobin index, the leukocytes numbered 5,000, with polymorphonuclears 60 per cent. One severe case gave a count of 7,300, with 50 per cent. of polymorphonuclears, and the other five cases gave a polymorphonuclear percentage of from 60 to 72 and a count of from 6,000 to 7,300. Only one showed eosinophils, which were 3 per cent. Van der Scheer[11] found eosinophils (12 per cent.), unaccounted for otherwise, in only one of his thirty-three cases.

Rogers[1] remarks that a rapidly progressive pernicious anemia is a most serious complication, especially observed in patients beyond middle age; and it would seem probable that most of the high index figures with leukopenia and low polymorphonuclear count have been obtained from patients in this condition. But noteworthy in these cases is the absence of subcutaneous fat, which in ordinary cases of pernicious anemia is retained.

WASSERMANN REACTION

In all of Bovaird's thirteen cases and in five of ours that were tested, the Wassermann reaction was negative.

BLOOD PRESSURE

The blood pressure was regularly low, the systolic ranging between 80 and 110, and the diastolic between 52 and 80.

URINE

The most noteworthy finding in the urine was indican, which was present in all cases, whether the patients were having diarrhea or constipation. Several writers have mentioned the high indican content. Urobilin was reported by Manson-Bahr[12] and Rogers,[1] and was found by us three years ago in the patient still living, who had the pernicious anemia blood picture described heretofore, i. e., hemoglobin 46, and hemoglobin index 1.15. Now, with hemoglobin 88 and a hemoglobin index of 1.13, there is no urobilin in the urine. In the two patients with typical pernicious anemia, who died, the urine was negative for urobilin.

STOMACH CONTENTS

Wood[3] states that in sprue cases there is an absence of hydrochloric acid. In 1916, Brown[13] reported a case in which there was both gastric and pancreatic achylia, and later he reported two cases in which there was gastric anacidity, two in which there was subacidity, and one in which there was hyperacidity. In Bovaird's[4] cases, six showed anacidity, one subacidity, and six normal acidity. In thirty-three cases, Van der Scheer[11] found normal contents in twelve, hyperchlorhydria in one, hypochlorhydria in fourteen and achlorhydria in six. Pratt and Spooner's[14] patient had achylia.

We have records in eight of our cases. The six patients who lived showed one-hour acidities of 64/106, 66/80, 40/54, 40/56, 22/34, and one with a pernicious anemia blood picture, who had several test breakfasts in three years, showed gradual increase from 30/46 to 58/82. Of the two who died (both with pernicious anemia blood pictures), one gave 0/20 with rennet and pepsin both present, and the other 0/20, and later 0/9, with no rennet or prorennet at either test.

PANCREATIC FERMENTS

In five cases, Brown[13] reported pancreatic achylia in three, and some degree of pancreatic deficiency in the other two; and this, coming from one who is such an authority on the pancreatic ferments, had the effect of creating the impression that pancreatic achylia is usual and to be expected. His cases were all chronic and severe. He tested with great care for trypsin, amylase and lipase. Simon[15] tested three cases and found no pancreatic deficiency. Bovaird[4] reports trypsin absent in four, diminished in one, and normal in three, and amylase absent in one, diminished in two, and normal in four. He found trypsin without amylase and amylase without trypsin. In Pratt and Spooner's[14] case, trypsin was obtained from the duodenal contents and

7. Barach, A. L., and Murray, H. A.: Tetany in a Case of Sprue, J. A. M. A. **74**: 786 (March 20) 1920.
8. Stitt, E. R.: Diagnostics and Treatment of Tropical Diseases, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1922.
9. Low, G. C., in Price's Practice of Medicine, Oxford, 1922.
10. Barker, L. F.: Monographic Medicine, New York, D. Appleton & Co. **3**: 490, 1916.
11. Van der Scheer, A., in Mense's Handbuch der Tropen Krankheiten, Ed. 2, **3**: 451-507, 1914.
12. Manson-Bahr: Manson's Tropical Diseases, New York, William Wood & Co., 1921.
13. Brown, T. R.: Bull. Johns Hopkins Hosp. **26**: 289 (Oct.) 1916; Am. J. Med. Sc. **161**: 501 (April) 1921.
14. Pratt and Spooner: Tr. A. Am. Phys., 1912.
15. Simon, S. K.: South. M. J. **14**: 255 (April) 1921.

the feces, though other tests pointed to deficient pancreatic activity.

In seven of our cases, trypsin tests were repeatedly made on the feces, and, in some cases, on the duodenal contents. In four, they were persistently strong, in one strong at first, later nearly absent, and recently strong again, in one slight and in one absent. In the patient who died, with 0/20 and 0/9 of acidities in the gastric contents, trypsin was persistently present in the stool and duodenal contents, even shortly before death. In the case in which there were the highest gastric acidities, trypsin was absent.[16]

BILE

Bile pigment in the stool was regularly present in our cases, as shown by Schmidt's [17] mercuric chlorid test. The duodenal contents showed ample bile in three cases, one shortly before the patient died. Wynter-Blyth,[18] Van der Scheer,[11] Hunter, Harley and Goodbody [19] and others have shown it to be present in the stool in the form of leuko-urobilin.

REACTION

The reaction of the stools was highly acid during the periods of highly fermentative diarrhea, but at other times, in some cases, was alkaline. This had no relation to the presence or absence of indican in the urine.

FAT

Fat in the stool is characteristic of the disease. A normal stool shows from 8 to 25 per cent. of fat in the dried feces.[20] Schmidt [17] says that 20 per cent. is the outside limit of normal for a patient not on an excessive fat diet. In eight sprue cases in which there was probable involvement of the pancreas, Cammidge [20] found from 39.8 to 76.1 per cent. of fat; and in five cases in which there was no suggestion of pancreatic involvement, he found from 34.3 to 57.7 per cent. In four patients, Bovaird [4] found the fat from 25 to 48 per cent.; in cases with absence of pancreatic ferments, Bahr [5] reported from 70 to 90 per cent., while in a case without pancreatic deficiency Pratt [21] found 59 per cent. In one case, Pratt and Spooner [14] reported a fat loss of 45 per cent. In one of our cases, in which the trypsin was much diminished, the total fat of the dried stool during a period of constipation and on a mixed diet with fruit and low fat content was 16.7 per cent. In another, the dried diarrheal stool showed 38 per cent. of fat. In a patient, who did not have sprue, whom necropsy proved to have an absolutely normal pancreas, Whipple [22] found 80 per cent. of fat in the stool.

In estimating the fat in the stools, both the frequency of the stools and the character and amount of the fat in the diet are factors of great importance. Diarrheal stools regularly contain a high fat percentage. In regard to diet, Gaultier [23] found that in a normal person on a diet containing 96 gm. of fat in the form of meat and bacon, 17.2 gm. was recovered from the feces, while on a milk diet containing 95.1 gm. of fat the amount recovered was only 3 gm. Schmidt and Strasburger [17] and also Harley and Goodbody [19] noted that, as the quantity of fat in the food increased, the stool fat tended to increase out of proportion. In a normal subject of the latter authors on 4 pints of milk a day, the stool fat amounted to 2.18 gm., while on 4½ pints a day it was 2.95 gm., and on 5 pints a day it was 5.13 gm. In a sprue case on a Schmidt diet containing 99 gm. fat, Rademaker [24] found the stool fat 48.23 per cent., and in a patient on 2 liters of milk daily containing 60.22 gm. of fat, Wynter-Blyth [18] found the stool fat 63.7 per cent. In seven sprue cases, Van der Scheer [11] made eleven estimations, of which we quote two as examples: on a daily ingestion of 60 gm. of fat, the fat in the stool was 38.2 per cent., and the loss of fat in the stool 74.5 per cent.; on 87 gm. of fat, the stool showed 34 per cent. and a loss of 76 per cent.

Cammidge [20] states that normal stools show about 1 per cent. of neutral fat and about 9 per cent. each of free fatty acid and soap. Thus, a high neutral fat would suggest the absence of the fat-splitting frement lipase. In three cases Brown [13] found absence of lipase. Bovaird [4] noted in three cases that the neutral fat was from 11 to 35 per cent. of the total, and in one case in which necropsy showed a negative pancreas the neutral fat was 60 per cent. In Whipple's [22] nonsprue case in which the pancreas was normal, the neutral fat was 62.5 per cent. Cammidge [20] is of the opinion that the higher total fat figures in sprue indicate both deficient pancreatic secretion and deficient intestinal absorption, but it is probable that the high fat figures are due in most cases, not to the absence of lipase, but rather to a combination of diarrhea with inability of the intestines to absorb even soaped and emulsified fat, because of the involvement of the lacteal capillaries in the intestinal atrophy.

EXAMINATION WITH THE SIGMOIDOSCOPE

In two of nine cases examined, Bovaird [4] found minute granular areas suggesting ulceration, in one an area of necrosis, and in several others a raw-beef color to the mucous membrane. In six of our cases, the sigmoidoscope revealed nothing abnormal except a greater or less degree of hemorrhoids, with, in two cases, excoriation and fissuring at the anus.

TONSILS

It is noteworthy that five of our patients showed diseased and pus-exuding tonsils.

ANATOMIC FINDINGS

In our two necropsy cases the pancreas was histologically normal and the intestines showed some thinning and chronic inflammation, but not of the marked degree spoken of in the textbooks. In Bovaird's [4] nocropsy case the findings were like ours. In one of our patients who is practically well, though with occasional attacks of burning in the mouth and the esophagus, an abdominal operation for removal of the gallbladder and the appendix did not reveal any special thinning of the small or large intestine.

ROENTGEN-RAY STUDY

In three cases a roentgen-ray study of the alimentary tract showed dilatation and sluggishness of the lower end of the ileum and the cecum and proximal one third or one half of the colon.

ETIOLOGY

Infection.—In 1901, Kohlbrügge [25] reported the finding of *Oidium albicans* (*Monilia albicans*), the thrush

16. We regret that, owing to researches being carried on with insulin, our laboratory was so overwhelmed with work that we were unable to have amylase and lipase tests done in the five cases coming to us recently.
17. Schmidt, A. O., and Strasburger, J.: Die Faeces des Menschen, Berlin, A. Hirschwald, 1901.
18. Wynter-Blyth, J., quoted by Van der Scheer, Manson-Bahr and Thin.
19. Harley and Goodbody: Chemical Investigation of Gastric and Intestinal Diseases, London, 1906.
20. Cammidge, P. J.: Faeces of Children and Adults, New York, William Wood & Co., 1914.
21. Pratt, J. H., quoted by Wood.
22. Whipple, G. H.: Bull. Johns Hopkins Hos., 1907, p. 382.
23. Gaultier: Coprologie clinique, 1907.
24. Rademaker, G. A., Jr.: Observations on Indian Sprue, Diss., Leiden, 1906.
25. Kohlbrügge, J. H. F.: Nederl. Tijdschr. v. Geneesk. 2: 16, 1901.

or sprue fungus of babies' mouths, in the stools and tongue scrapings, and at postmortem in the mouth, esophagus and intestine. Manson-Bahr [12] also found *Monilia albicans* in the same regions, and thought that the ordinary thrush fungus might become virulent in the tropics, especially in the exhaustion states produced by hot, humid climates. In almost all his recently studied cases, Castellani [26] has found monilias, and to these he attributes the fermentative diarrhea, but not the sprue itself. His monilias were of several varieties.

In 1914, Ashford [27] in Porto Rico reported a specific monilia, now known as *Monilia psilosis*. By injecting guinea-pigs and white rats intraperitoneally with his cultures, he produced a rapidly fatal septicemia with diarrhea, and lesions in the lungs and kidneys; and by injections into the tongues of rabbits he produced a general infection and diarrhea fatal in three or four days. Dold [28] remarks that though these experiments resulted in death, they do not prove that *Monilia psilosis* causes sprue.

In February, 1923, Ashford [27] recorded 1,595 cases of sprue seen in the years 1908 to 1921, inclusive. Of these, 502 were diagnosed without laboratory examination, 953 were confirmed by evidence of *Monilia psilosis* infection as shown by cultures of stool and tongue scrapings or by complement fixation tests, and 140 failed to show monilia infection. He states that while only 1.5 per cent. of tropical people living in endemic sprue zones have been found to harbor *Monilia psilosis* without showing its characteristic effects, 87.6 per cent. of his sprue patients were heavily infested with it. "Those that proved negative to *M. psilosis* both mycologically and serologically were usually old chronic cases, often in a state of cachexia, or those in whom the tongue lesions and characteristic diarrhea, once prominent, were quiescent at the time of examination." He had previously reported finding *M. psilosis* in 17 per cent. of ninety-two cases not sprue but with gastrointestinal disturbances with excessive gas formation, in 3 per cent. of normal persons, and in 100 per cent. of forty-nine cases of sprue. Dold [28] of China found *Monilia* or its relatives (yeasts, *Oidia*) in 16 per cent. of nonsprue diarrheal stools, in 7.5 per cent. of normal stools, and in 92 per cent. of sprue stools.

Ashford has treated many cases with a vaccine made from *Monilia psilosis*, with surprisingly good results. In one series treated in Porto Rico while Ashford was in France, Michel [29] reports sixty-two cases in which from three to eight doses of vaccine were given. All had been diagnosed by Ashford, all the patients had *Monilia psilosis* in the stools, and all had positive complement fixation tests. Of the sixty-two patients, forty-nine were cured, twelve improved and one died. Gonzalez-Martinez [30] of Porto Rico obtained positive complement deviation tests with a *M. psilosis* antigen in 91.35 per cent. of his last eighty-one cases.

In one case, Oliver [31] made careful cultural tests and "on two occasions from the stool, twice from tongue scrapings, once from the sputum and once from a tooth abscess, a growth of yeasts was obtained which corresponded *in the main* to *Monilia psilosis* described by Ashford." J. M. Rogers [32] reports *Monilia psilosis* in a case from Korea, and Hannibal and Boyd [33] have reported it in two cases arising in the United States.

On the other hand, many have found monilias that did not meet the cultural requirements for Ashford's *Monilia psilosis*, and many have reported no monilias at all either in tongue scrapings or stools of typical sprue cases.

Many have been content with the finding of monilias by the microscope, while in thirteen cases Bovaird [4] found it thus only once. How much value can be attached to positive findings by the microscope we are not prepared to say, as the organisms may be from the food and killed by cooking; but we believe, with Craik,[34] that a negative microscopic examination is worthless and that cultures give the only reliable data.

Nicholls [35] of India failed to grow any yeast forms from the tongue and mouth scrapings of a number of native cases, and from six out of eleven cases in Europeans, Zinsser got negative cultures from the stool of one of Bovaird's [4] patients that died, and Cecil negative cultures from a typical case from Porto Rico (reported by Bovaird [4]). Manson-Bahr,[12] who has studied many cases and in most has found a monilia or some related species of yeast, believes that Ashford's claims for a specific monilia rest on a very slender foundation. Dold,[28] by infecting dogs, monkeys and mice with various yeasts, obtained lesions similar to those of human sprue, and found an actual invasion of the intestinal mucosa with yeast cells and mycelium. But he considered Ashford's claim to specificity unsubstantiated. He found it impossible to classify the monilias by cultural or biochemical reactions, and he was unable to culture out the *Monilia psilosis* according to the method of Ashford. This agreed with the experience of Manson-Bahr.[12]

It would seem, then, that while a large number of experts in tropical diseases feel that a monilia or some related yeast may be responsible, in the vast majority of the cases, for certain of the sprue symptoms very few consider *Monilia* the causative factor in the disease, very few accept Ashford's specific *Monilia psilosis*, and some report typical sprue cases of all grades of severity without *Monilia*.

Our Monilia Studies.—In the older cases studied microscopically, we failed to find *Monilia*. In our cultural mycologic studies in the recent five cases, we have used as a control three cultures of *Monilia psilosis* sent to us by Dr. McCoy of the Hygienic Laboratory, Washington, D. C. These were from long-standing cultures obtained from cases in Porto Rico six or seven years ago. The three cultures received gave different fermentation reactions on a series of seven different fermentable carbohydrates, indicating either that they are different organisms or different subvarieties of the same organism, or that they represent one and the same original organism, the different samples of which have become altered in their reactions, perhaps through repeated cultivating. Ashford particularly states that the aberrant types may be reinvested with their cultural characteristics by passage through animals, especially

26. Castellani, A.: Brit. M. J. **1**: 338 (March 5) 1921.
27. Ashford, B. K.: Relation of the Genus "Monilia" to Certain Fermentative Conditions of the Intestinal Tract in Porto Rico, J. A. M. A. **64**: 1895 (June 5) 1915; Bol. de la Asoc. Med. de Puerto Rico **15**: 22 (Feb.) 1921; **15**: 249 (Dec.) 1921; Am. J. M. Sc. **154**: 157 (Aug.) 1917; **165**: 157 (Feb.) 1923; Am. J. Trop. Med. **2**: 139-150 (March) 1922; Oxford Medicine **5**, revised sheets issued 1923.
28. Dold, Hermann: China M. J. **31**: 387 (Sept.) 1917; Arch. f. Schiffs u. Tropen. Hyg. **23**: 461 (Oct.) 1919.
29. Michel, Carl: J. Infect. Dis. **22**: 53 (Jan.) 1918; Am. J. M. Sc. **154**: 177 (Aug.) 1917. Tice's Practice of Medicine, Hagerstown, W. F. Prior Company, 1922.
30. Gonzalez-Martinez: Bull. Soc. Path. Exot. **13**: 384 (May 12) 1920.
31. Oliver, W. W.: Cultural Studies on a Case of Sprue, J. A. M. A. **74**: 27 (Jan. 3) 1920.
32. Rogers, J. M: Isolation of Monilia Psilosis in Tropical Sprue (Psilosis), J. A. M. A. **79**: 1677 (Nov. 11) 1922.
33. Hannibal, H. A., and Boyd, M. F.: Am. J. Trop. Med. **1**: 165 (May) 1921.
34. Craik, Robert: Brit. M. J. **2**: 293 (Aug. 21) 1920.
35. Nicholls, L.: Indian M. Gaz. **53**: 409 (Nov.) 1918; J. Trop. Med., Feb. 1, 1919, p. 22.

guinea-pigs, and may undergo alterations in their fermentative properties on artificial cultivation. This procedure is being carried out in guinea-pigs with each of our three Hygienic Laboratory cultures as well as with representatives of each of the several groups isolated from the patients under investigation; but to date we have been unsuccessful in our restorations.

We will omit the details of Ashford's cultural requirements for *Monilia psilosis*, except as follows: "A stab-culture in gelatin gives a growth along the line with arborescent extension of mycelium forming an 'inverted pine tree.' Gelatin is never liquefied. Milk is rendered alkaline, but is neither clotted nor decolorized."

In none of our stab cultures have we had liquefaction, and in no instance have we had the characteristic "inverted pine tree" growth, excepting with the three strains of supposed *Monilia psilosis* sent us from the Hygienic Laboratory and in our one case from Korea, which gave a typical "inverted pine tree" growth when examined on the fifteenth day. In this case milk was unchanged, while from all the Hygienic Laboratory cultures milk showed a very slight acid condition with a coagulum in the bottom of the tubes, thus not meeting Ashford's requirements.

In Case 1, from China, three stool cultures all showed monilias somewhat similar to one of the Hygienic Laboratory cultures (No. 204), but of varying types.

In Case 2, from Java, different stool cultures showed several monilias, one of which closely resembled one of the Hygienic Laboratory cultures (No. 203).

In Case 3, from Korea, stool culture showed some monilias which fairly well corresponded with one of the Hygienic Laboratory cultures (No. 204).

In Case 4, from Cuba, a very persistent case presenting the characteristic Crombie [36] ulcers in the mouth, repeated cultures of stool and tongue scrapings have failed to show any monilias or yeasts of any kind. On direct smear, the stomach and duodenal contents and the stool of this patient have at times shown yeasts microscopically; but these gave no growth in broth cultures or surface seedings on special plating mediums. We suspect that these were cooked yeasts from the bread which the patient was eating at the time.

In Case 5, from Louisiana (a former resident of Haiti), cultures from the stool were negative for monilias, but cultures from the tongue and duodenal contents before death, and from the tongue and colon at necropsy showed a monilia which corresponded very closely with a *Monilia psilosis* culture from the Hygienic Laboratory (No. 203). This was the only case that gave consistent cultural findings of the monilia from all regions of the body, but it did not give the "inverted pine tree."

Thus, in four out of five cases we found monilias by culture, but in three of the patients the monilias obtained at different times have shown different cultural reactions throughout, and in one, a severe case, we could get no monilias from either stool or tongue curettings. Only one gave the characters of *Monilia psilosis* as described by Ashford.

Monilia vaccines obtained from the Hygienic Laboratory were administered in three severe cases, without apparent effect. They were also used as intracutaneous tests on three patients. In two of the patients who showed *Monilia* by culture, the skin reactions were negative, but in the patient who failed to show *Monilia* on cultural tests there was a marked local reaction to 0.01 c.c. intracutaneously of a vaccine of the strength of 1,000 million per cubic centimeter. In three controls, two were negative, and one that reacted positively was a blond northern elevator boy at St. Luke's Hospital, who had never been in a sprue region and is apparently well. The positive reaction showed by a wide areola and tenderness which lasted about four days, and redness with a decided nodule, which persisted between two and three weeks. Of course, an intracutaneous test merely shows susceptibility and not necessarily infection.

A complement fixation test using the vaccine was done in the case that came to necropsy, and was negative. We did not prepare a special *Monilia psilosis* antigen by alcoholic extraction, such as was used by Michel [29] of Ashford's laboratory, who reported a large series of positive complement fixations; but in a well marked or severe case one would not consider that necessary.

Streptococcus Viridans.—Leonard Rogers [1] was disposed to attribute importance to the repeated finding of *Streptococcus viridans* in the mouth, and reported good results from an autogenous oral streptococcus vaccine. His results were confirmed by the work of Nicholls, who obtained complement deviation tests in two out of three cases, and good results from the autogenous vaccines. Rogers suggested that *Streptococcus viridans* might produce conditions favorable for the development of *Monilia*.

Our Case 1 showed *Streptococcus viridans* in stools and tooth cultures. Case 2, in which there was marked mucous colitis, showed *S. viridans* in the mouth and in the mucus of the stool. Case 3 showed *S. viridans* in the stool. Case 4 showed *S. viridans* in the stool. Case 5, in which the patient was acutely ill and evidently septic at the last admission to the hospital, showed at necropsy a purulent gallbladder which gave a pure culture of *S. viridans*.

It is our experience in New York that the streptococcus of the *S. viridans* group is a frequent inhabitant of the mouth and intestines, and we believe that though it may become virulently pathogenic in some cases, it is usually not so. We are disposed to attribute no importance to it in these sprue cases, except in the case which showed it in the gallbladder pus at postmortem, and we consider that this pus was a coincident and not a manifestation of sprue.

A DEFICIENCY DISEASE

In a condition with emaciation, diarrhea, stomatitis and sore tongue, it was not strange to find those who placed it in the list of deficiency diseases. This theory was supported by the fact that the cure seemed to be largely dietary. Patients were promptly relieved by a fresh milk diet. They were often promptly relieved by a fresh fruit diet or a fresh meat diet. If not a food deficiency, how else could one account for complete relief from an exquisitely sensitive mouth, irritable stomach and diarrheal bowels by the ingestion of large quantities of irritating, raw, acid fruit?

We cannot gain any assistance in determining the etiology by the experiments of McCarrison, who fed monkeys on a vitamin-free diet and obtained lesions resembling the initial lesions of sprue; for such experiments might have produced, and usually do produce, entirely different lesions. Elders,[37] however, finds that

36. Crombie, A.: Indian Med. Gaz., December, 1880; May, 1892.

37. Elders, C.: Nederl. Tijdschr. v. Geneesk., 1917, p. 1253; 1919, p. 1683; 1920, p. 2189.

the food of sprue patients has been deficient in the amino-acids, in which flesh is rich, and in vitamins A and B. In one of our cases, owing to poverty, there was a notable absence of amino-acid producers in the diet, and in another case, in which the patient was possessed of wealth, a habitual undereating of these substances all his life. Ashford [27] specifically lays stress on the fact that sprue is a disease of the better classes and not usually of the poor and underfed; yet he states that, on account of climatic diets or digestive or other disturbances, the diet of the sprue patients has been deficient particularly in protein, vitamin B and certain mineral substances, notably calcium and potassium. "Most of the Porto Rico cases present a history of having eaten little meat and an excess of vitamine-less carbohydrates." But because "there are acute cases of sprue in newcomers to the Island, usually Americans, in whom it would be begging the question to assert the presence of a food deficiency, and there are also cases who after a brief visit to the tropics have returned to the hearty diet of our Northern cities and have developed sprue," therefore, he argues, food deficiency alone does not produce sprue, and the infection by *Monilia psilosis* is necessary.

Appearance of Patient 4: age, 23; weight, 90 pounds (41 kg.); hemoglobin index, 1.13; hemoglobin, 88.

A COMBINED DEFICIENCY AND MYCOTIC DISEASE

This is Ashford's most recent etiologic idea. In an article on the conception that sprue is a mycosis superimposed on a state of deficiency in certain essential food elements Ashford (1922) reached the following conclusions: "Most frequently typical sprue is preceded by a physiologic glandular deficiency recognizable by a deficiency syndrome in which pallor, lassitude, mental hebetude and gastro-intestinal derangement are prominent. In this condition there is a marked reduction in output of the digestive glands, particularly of the pancreas and intestinal glands. This results in a change in reaction and composition of the intestinal contents, which brings about a high acidity. In this state, *Monilia psilosis* finds a medium in which it can colonize and produce the typical picture we know as sprue. In a minority of cases, sprue occurs in those in whom food deficiency plays no evident part and in whom the disease seems to come by sheer force of infection; but it is justifiable to suppose that some other factor has diminished the output of the digestive glands to permit the successful implantation of *Monilia*. The organism of sprue usually appears to find no propitious medium for colonization, save in debilitated states, principally due to food deficiency."

Manson-Bahr [12] thought that, owing to the hot climate, an exhaustion state might develop which would permit the ordinary thrush fungus, *Monilia albicans*, to become virulent.

So far as our knowledge extends at present, we accept Ashford's theory of the double cause of the disease, but we are not quite ready to accept his theory that the superimposed infecting organism is the specific *Monilia psilosis*, or even that it need be any monilia.

PELLAGRA VERSUS SPRUE

It has been a matter of interest to us to speculate on a possible common factor in the two closely related diseases, pellagra and sprue. In pellagra, a monilia has only rarely been found. In the vast majority of cases of sprue, a monilia is present. Could it be possible that these two diseases may have the same or similar underlying conditions, but that the characteristics of sprue mostly come from the added infection of a monilia or some related organism, while those of pellagra are due to some other infection, such as that of a fluorescent fungus with photodynamic properties as recently isolated in some cases by Jobling and Arnold? [38]

It is noteworthy that the chief amino-acid producers, milk, eggs and flesh, are less consumed in warm climates than in cold, and that just these substances have been notably lacking in the diet of pellagrins. We have the statement of Elders [37] and Ashford as heretofore mentioned that they are also lacking in the diet of many sprue cases. May it not be that the change of habit from liberal to sparse consumption of proteins, which is the result of removal from a colder to a hotter region, may account for the special susceptibility to sprue in Europeans and Americans who have gone from a colder country to make their residence in the tropics?

In 1915, Ashford wrote: "May not some of the pellagra of our Southern states be in reality sprue? It would be interesting to study some of the cases without skin lesions in which the diagnosis is pending between these two diseases. I have had so far three cases with stomatitis and white diarrhea which I considered sprue without moniliasis of the tongue, but which later developed the pellagrous eruption." Graham,[39] Simon,[15] Wood [3] and others have called attention to the presence of sprue in the southern United States, and to its possible confusion with pellagra, especially those cases of pellagra that do not present skin lesions. Further, Wood remarks, "It is no doubt true that many cases of pellagra are complicated by sprue." Michel [29] of Porto Rico reported two cases in which both diseases were present.

One of our patients, the Cuban, whose picture is shown, gave a history of poverty during his boyhood and adolescence with absence of milk and only very occasionally any flesh foods or eggs in his diet, which consisted mostly of fruits, rice and potatoes. He developed sprue symptoms several years ago. About the first of this year the skin of both hands seemed to be more pigmented than before, and became abnormally dry and scaly and slightly erythematous at the wrists, and he had a slight eczematous eruption on the backs of both legs. But we have had him gone over very carefully by Dr. Ward J. MacNeal, the pellagra authority, who has concluded that these lesions are definitely not pellagrous and that the correct diagnosis is presumably

38. Jobling, J. W., and Arnold, Lloyd: Observations and Reflections on the Etiology of Pellagra, J. A. M. A. **80**: 365 (Feb. 10) 1923.
39. Graham, quoted by Simon (Footnote 15).

sprue. This is the one recent case in which we have failed to find some form of *Monilia*.

THE SIGNIFICANCE OF THE GEOGRAPHIC DISTRIBUTION

We would call attention to the wide geographic distribution of sprue, as illustrated in our cases. For if monilias are found in most of the sprue cases from all parts of the tropical and subtropical areas of the globe, this finding is suggestive that in most cases an infection with *Monilia* may be the precipitating cause, or at least an important causative factor in the production of the clinical condition recognized as sprue. Moreover, Ashford's claim to specificity for *Monilia psilosis* can be sustained only if in undoubted cases from all parts of the world the monilias found consistently meet his cultural requirements.

CONCLUSION

In sprue we have a disease for which no fully reliable laboratory criteria have been established, and therefore in some of the cases the diagnosis might be questioned. In all but three of our cases the diagnosis came with the patient, and, judged by the history and clinical findings, was accepted by us. In the three diagnosticated by us, the symptoms were severe and gave a striking and characteristic clinical picture of the disease.

We have not completed our research on our present cases, and we are extending it to new cases just arrived. We have also undertaken a study of a series of cultures of *Monilia psilosis* kindly sent us from Porto Rico by Ashford. We therefore refrain at this time from expressing definite opinions as to (1) whether or not *Monilia psilosis* is a distinct species with specificity for sprue; and (2) whether or not *Monilia* is an important accompaniment of most sprue cases. We suspect, however, that the former idea is not true and that the latter is.

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TREATMENT BY NEGLECT

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It seems to be the fundamental rule running through Nature that periods of rest or quiescence alternate with periods of activity, complete or incomplete. In this great world we know that light and darkness, summer and winter, rain and dryness alternate; and in our bodies respiration, heart beats and mental activity alternate with periods of rest. Joy and sorrow, hope and fear, exaltation and depression, love and hate alternate.

When we turn to the field of therapeutics, we can think of many conditions that require some active and immediate attention, such as injuries resulting from accidents; but in all cases—surgical or medical—there comes a period of rest. Following a gallbladder operation, removal of the tonsils or the appendix, the setting of a fracture, the removal of the prostate gland or of a cataract, a period of rest follows; so with therapeutics of medicine, such as drugs, baths and massage, administration is followed by periods of rest.

To abridge this period of rest is in general meddlesome therapeutics. Yet, what is more common with the patient or his friends than to urge the physician to do something—this, that or the other thing? And what physician has not been called on to resist his own impulse to do this, that or the other thing in his extreme anxiety to relieve the patient and hasten his recovery? The man who cannot wait is a man who is keyed up and desires immediate results. He is with us always, and his numbers are legion. He desires quick gain, large profits in a financial way, short cuts to education and an easy way to heaven. If his illness is at all prolonged he is apt to go from one medical adviser to another. He is likely to try the various cults and cure-alls, selecting the one that most appeals to his make-up and temperament, whether on a materialistic or an idealistic basis. Many, many times—too often—the patient's clamor for quick cure has led the physician to change face about in therapeutics far more than is good for the patient or for his own professional development.

Let me attempt more particularly to apply these principles to the treatment of a great group of functional diseases which we call the psychoneuroses, which include hysteria, neurasthenia, psychasthenia and anxiety neuroses. Here commonly the patient is self-centered, given to self-pity, in many cases to an astonishing degree. The fact that his desire and thought are so set on himself and the cure defeats that very object. He pulls, but he does not let go. There is not in the man the alternative that is to be found in the normal man, periods of somberness and foolishness, of activity and rest, desire for work and for play. He wrinkles his brows and sets himself toward the goal of getting well; but he cannot laugh—he cannot let go.

The task before the physician who handles such a patient is to lead him to forget himself; and this obviously cannot be done by merely telling the patient to do so. He must try to bring to the channels normal life, activity in the various ways depending on his make-up, temperament and social situation. He should be taught to work and to play and somehow taught to laugh. Baths, regulation of the bowels, and massage, may all help to these ends, but there is something about the personality of the physician, something of guidance of the patient's whole life, that is vital to the success of the plan in many cases. There is one thing these patients need which they often do not receive; namely, neglect. Not careless neglect, the neglect of a physician not on his job; but studied, careful neglect: the sort of neglect that has for its object to lead the patient to lean on himself and to forget himself. The medicine bottle and the pill box, I often tell people, are crutches and sometimes useful crutches, but always should be dispensed with as soon as it is possible to do so. The physician is a crutch himself, to be dispensed with as soon as the patient can do without him.

The great value of thorough physical and mental examinations of patients has been sufficiently emphasized of late years; but while approving of all this, I am of the opinion that there are patients who are examined far too much. The self-centered psychoneurotic delights in examinations, reexaminations and more examinations. And in these days of many clinical procedures and manifold laboratory tests we run a great risk of overexamining certain of these psychoneurotics. There is a judicious neglect which the physician makes in his visits. It is extremely important and necessary that enough time be given to hear the patient's story; but it is a mistake to spend time in hearing undue repetitions of this story. While the first visit may be of an hour's duration, the next one may be half an hour; and other visits of a minute and half may be most appropriate. There are times when the patient is much better visited once a week or once in two weeks rather than every other day. There is a

type of psychasthenic patient that leans—leans on drugs, on appliances or members of his family, and on his physician. He does the maximum leaning instead of the minimum leaning, and does not look forward to the time when he will not lean at all. The job of the physician is to lead him to lean less and less and, if possible, to walk alone and not lean at all. So it becomes evident that in consideration of all illnesses, perhaps none more than psychoneuroses, there is great wisdom in Ptah Hotep's application:

The archer hitteth the target, partly by pulling, partly by letting go.
The boatman reacheth the landing, partly by pulling, partly by letting go.

AN EXPERIMENTAL STUDY OF MULTIPLE SCLEROSIS *

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AND
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I. CLINICAL HISTORY AND GENERAL DISCUSSION

By Joseph Collins, M.D.

Hysteria and disseminated sclerosis are the nervous diseases of mystery. They are half sisters who reveal their relationship in the way they carry on. The greatest master of modern neurology courted them so assiduously that his name is indissolubly linked with both of them. He did not succeed in making them yield the secret of their being, and his successors have not succeeded. Now that syphilis is being forced into the category of curable diseases, and now that there is hope that we shall be able soon to shape and control by serum and antitoxin diseases caused by cocci and bacilli, hysteria and disseminated sclerosis are the two diseases of the nervous system on which the physician and bacteriologist may concentrate their exploratory urge.

An instructive lesson may be learned from the history of disseminated sclerosis in this country. Less than a generation ago, it was thought to be a rare disease. Less than a generation ago there was scant recognition of neurology, of its claim in college and hospital, and of nervous diseases in the clinic or in private practice. Today it is generally admitted that disseminated sclerosis is one of the commonest organic diseases of the nervous system, and today the teaching of neurology has a place commensurate with its importance in the medical curriculum. In proportion as patients complaining of motor disorder have been examined carefully, methodically and repeatedly, so have the statistics that establish the frequency of the disease come forth.

The first important contribution to our clinical knowledge of the disease was recognition of the fact that the formes frustes of Charcot, the aberrant or atypical forms of the disease, were the rule, not the exception; and that the so-called classical form of the disease displaying itself in spastic extremity, scanning speech, intention tremor, and nystagmus, was the exception, at least in the early stages of the disease.

The second important contribution was that the majority of cases diagnosed twenty-five years ago as examples of myelitis, acute, subacute and chronic, were in reality cases of disseminated sclerosis.

The third and very important contribution was the demonstration that many cases of paraplegia, monoplegia and transitory disturbances of sensation diagnosed as hysteria were cases of disseminated sclerosis.

And finally, a significant clinical fact was recognized when we learned that disseminated sclerosis sometimes pursues a most extraordinary course: that is, not only does it cease to progress, but it practically ceases to be; and the patient, obviously helpless, and apparently hopeless, sheds all manifestations of disease and returns to the engrossments and diversions of ordinary life. Unfortunately this is the exception, not the rule.

It would be an interesting chapter to give the details of how these steps were taken and who was most instrumental in accomplishing them, but I have no intention of doing it here.

All that we know of the occurrence of the disease can be summarized in a sentence: It is a disease of early maturity; it affects males somewhat more frequently than females; it occurs oftener in those who do skilled manual labor than it does in ordinary laborers and brain workers, and it is encountered oftener in northern countries—Great Britain and northern Europe and the northern part of the United States—than in southern. It has followed infectious disease and trauma in such a considerable proportion of the cases that it has been thought that there is a causal relationship between these two incidences and the occurrence of the disease; but this is doubtful. The probabilities are that there is some specific cause of disseminated sclerosis.

Disseminated sclerosis may cause symptoms that parallel those of any and every organic disease of the central nervous system. Every person between the ages of 15 and 45 who complains of motor disturbance of any sort, tremor, spasticity or enfeeblement, or of sensory disturbances, such as tingling, numbness and other paresthesia, especially if they are transitory and associated with motor disorder, should be suspected of having disseminated sclerosis.

With just the same certainty that the loss of the pupillary light reflex indicates syphilis of the nervous system, so does the loss of the abdominal reflex suggest disseminated sclerosis; and as we seek corroboration of a diagnosis of syphilis of the nervous system in the patient whose pupils have ceased to respond to light by examining his tendon jerks, investigating his sensory perception, and testing the reaction of his serum, so do we search in the patient whose abdomen no longer responds to gentle stroking by investigating his superficial and deep reflexes, his ocular mobility, the steadiness of purposeful manual movements, and the rhythm of his articulation. If his superficial reflexes are diminished, his tendon reflexes increased, his eyeballs oscillatory on attempted lateral fixation, if the rhythm of his speech is disturbed, or if he has intention tremor, the diagnosis of disseminated sclerosis may be made with much certainty.

The most constant early symptom of disseminated sclerosis is fleeting, subjective sensory disturbance. It is rarely elicited save on closest inquiry. The most constant symptom which the patient relates is easily induced fatigue, weakness and stiffness of one or more extremities. It is always associated with increased tendon jerks and often with the Babinski big toe phenomenon and allied signs.

The cranial nerves that are most frequently disordered are the first, the third and the sixth, and the display is in lacunar losses of acuteness of vision, cen-

* Read before the thirty-eighth meeting of the Association of American Physicians, Atlantic City, N. J., May 2, 1923.

tral and circumcentral scotoma, transitory diplopia, and nystagmus. The most pathognomonic sign of disseminated sclerosis is pallor of the temporal disks. So far as we know, it is found in no other disease.

The islets of disseminated sclerosis may occur in any part of the central nervous system; hence evidences of encroachment on, and destruction of, any part of the central nervous system may be a symptom of disseminated sclerosis.

No one is ever justified in giving arbitrarily an unfavorable prognosis in disseminated sclerosis, it matters not how helpless the victim of the disease may be; and since many have taken in hand to set forth a declaration of other import, I relate this experience: Twelve years ago there was brought to the Neurological Institute a young athlete, bedridden with spastic paraplegia for nearly a year. Because of fairly definite sensory disturbance, it was thought that he might have a tumor compressing the spinal cord. Repeated examination and protracted observation showed that, in addition to the spastic paraplegia and its customary concomitants, he had loss of abdominal reflexes, nystagmus, enfeeblement of the left upper extremity, and circumcentral scotoma. The vesical sphincter was irritable, the rectal sphincter sluggish. The symptoms had existed for nearly a year, and the state of helplessness which caused so much anxiety to him and to his family was of four months' duration. Repeated inquiry finally elicited the fact that when he was in high school eight years before, he had had an attack of "lameness" that laid him up for several weeks, and that at that time his feet and hands were numb. This man has now been at work for ten years, the advertising manager of a large and engrossing business. He admits that he plays a good game of golf, but I sometimes beat him.

Eighteen months ago, Dr. Noguchi suggested that I select a number of cases of disseminated sclerosis and send blood and cerebrospinal fluid to him, in order that he might test the alleged spirochetal origin of the disease. I selected eight cases:

CASE 1.—A man, aged 23, had had dishonorable discharge from the army. The discharge regrettably reflects on the clinical acumen of some of our profession. He was looked on as a malingerer. If spasticity, paralysis, exaggerated tendon jerks, the Babinski sign, loss of abdominal reflex, nystagmus, scanning speech, and intention tremor constitute competent testimony, he has disseminated sclerosis. He was a recent case, therefore, and there is nothing further interesting about him.

CASE 2.—A man, aged 35, unmarried, presented a "classical" case of disseminated sclerosis. The noteworthy feature was that he had had profound osteomyelitis as a boy and recovered after a prolonged stay in the Rocky Mountains.

CASE 3.—A man, aged 27, had had symptoms for two years. His was an "atypical" case; that is, he had no nystagmus, intention tremor, nor scanning speech, but he was a genuine example of disseminated sclerosis nevertheless.

CASE 4.—A man, aged 22, had more of the so-called typical, objective symptoms than in Case 3, and few would doubt the validity of the diagnosis.

CASE 5.—A woman, aged 40, had had symptoms only two years. One should always be on the lookout not to mistake such symptoms in a person of 40 for disease of the blood or blood vessels. But, as in so many of these cases, it was found on close inquiry that it was this attack that had existed two years. This patient had had transitory symptoms when she was 26, and again when she was 31.

CASE 6.—A man, aged 36, a painter, had a doubtful case. It was thought that his symptoms might be due to lead poisoning, but we never were able to recover lead from the urine, and there was no stippling of the blood corpuscles. As time goes on, one is permitted to say with more assurance that this is a case of disseminated sclerosis.

CASE 7.—A man, aged 34, whose symptoms had been in existence three years, had never had any indication of a remission.

CASE 8.—A man, aged 46, had been ill during seven years. His disease had frequently been diagnosed as lateral sclerosis, and nobody knows just what that means. Most cases diagnosed as lateral sclerosis are cases of disseminated sclerosis.

Seven of our patients were Jews, and two, Gentiles. This will give cause for reflection only to those who have never been to the Neurological Institute, or who are not familiar with its statistics.

II. EXPERIMENTAL RESULTS IN ANIMALS INOCULATED WITH BLOOD AND CEREBROSPINAL FLUID

By HIDEYO NOGUCHI, M.D.

The possibility is gaining ground that disseminated sclerosis is of infectious origin. Bullock,[1] as long ago as 1913, reported that he had produced the disease in laboratory animals, but it was not until Kuhn and Steiner [2] announced, in 1917, their finding of a spirochete in the blood and organs of guinea-pigs and rabbits inoculated with spinal fluid or blood or both from four exacerbation cases (three fresh and one recent) that the problem appeared to be narrowed down to a definite micro-organism. The spirochete was observed in fresh preparations under the dark-field microscope, also in smears stained by Loeffler's technic for flagella staining, and occasionally in alcohol-fixed organs stained by the Levaditi method. The organism was designated by Kuhn and Steiner as *Spirochaeta argentinesis* from the Latin name of Strasbourg, where the work was carried on.

The description of *Spirochaeta argentinesis* is of interest because of the rather inconstant morphologic features of the organism. By dark-field illumination it was said to vary in length from a fraction of the diameter of the red cell of the infected animal to a whole diameter, while in width it was more delicate than *Leptospira icterohaemorrhagiae* of Weil's disease, being often of extraordinary thinness. There were often highly refractile balls at both ends. Some specimens showed a loop at the end or along the course of the body. The movements were somewhat wormlike, moderately active, but seldom rotatory as in the case of *Leptospira icterohaemorrhagiae*. In stained preparations a small, delicate, straight projection of varying size was observed, resembling a flagellum. In Levaditi sections of the liver of animals, the organisms appeared only in the blood vessels, never in the tissue itself. Only a few isolated blood vessels were involved. No spirochetes were found in human materials.

In guinea-pigs the disease lasted from three days to twelve weeks from the time of inoculation to death. Paralysis was usually present. In rabbits the symptoms consisted of emaciation, inactivity, ruffled fur, paroxysmal drowsiness, increased reflexes, and paralysis before death. No remarkable changes of organs were observed at necropsy, and no organisms grew on culture mediums.

Siemerling,[3] in 1918, asserted that he had observed under the dark-field microscope a similar spirochete in

1. Bullock, W. E.: The Experimental Transmission of Disseminated Sclerosis to Rabbits, Lancet **2**: 1185, 1913.
2. Kuhn, P., and Steiner, G.: Ueber die Ursache der multiplen Sklerose, Med. Klin. **13**: 1007, 1917.
3. Siemerling, E.: Spirochätenbefund in Gehirn eines Falles von multipler Sklerose, Berl. klin. Wchnschr. **55**: 273, 1918.

the brain of a man who died of multiple sclerosis. Büscher [4] and Speer,[5] in 1921, reported each one positive finding. Speer's case was diagnosed by histologic examination of the brain and cord, and the spirochete was found under the dark-field in a fresh preparation from a grayish red focus in the medulla oblongata. A number of larger forms were seen, which in appearance recalled the tetanus bacillus or spermatozoa, or had lateral buds. Also some regular forms resembling *Treponema pallidum*, but perhaps shorter and thinner, were described. The spirochetes remained active in the smear for seven hours. Speer, like Siemerling and Büscher, found no spirochetes in Levaditi sections.

Simons,[6] in 1918, reported positive transmission to rabbits with blood. Marinesco,[7] in 1919, saw active spirochetes in the fluid from the fourth ventricle of guinea-pigs dying of paralysis within from three to four days after intracerebral inoculations of blood serums from two cases of multiple sclerosis. Marinesco failed, however, to obtain similar positive results on repeating the experiments.

Kuhn and Steiner [8] studied thirteen additional cases and found the spirochete in four of six early cases and in one exacerbation case, but none in six old cases. By inoculating blood intra-ocularly, positive transmission to rabbits and guinea-pigs was obtained in six cases. The authors report successful demonstration of the spirochetes in tissues by silver impregnation.

Birley and Dudgeon,[9] in 1921, obtained uniformly negative results with materials from thirty-five carefully selected cases of multiple sclerosis. Stevenson [10] examined thirty-seven sections, from four cases, stained by Jahnel's silver impregnation method, but found no spirochetes.

Kalberlah [11] studied two relatively recent cases; one of the rabbits inoculated with cerebrospinal fluid from the first case showed symptoms of paralysis, and a spirochete was found in the circulating blood, while in the second case numerous spirochetes of indisputable morphology were demonstrated in the blood vessels and liver tissue. Pettit [12] succeeded in producing a fatal disease in rabbits, and in one instance also in guinea-pigs and a monkey, with cerebrospinal fluid from four cases, and organisms resembling spirochetes were found in the cerebrospinal fluid of the animals. In one instance he was also successful in transmitting the disease from monkey to rabbit.

Gerson [13] does not regard the finding of spirochetes in certain instances as satisfactory evidence that they have a specific etiologic relation to multiple sclerosis, and calls attention to the fact that certain cases of syphilis simulate typical multiple sclerosis, whence confusion in diagnosis may have occurred in the instances in which spirochetes were found.

Our purpose in taking up the question of the etiology of multiple sclerosis was, if possible, to confirm and extend the observations of Kuhn and Steiner, and to study the spirochete by means of cultivation. As indicated in the experimental protocols presented below, the results were disappointing, being chiefly negative.

The histories of the eight cases available for study have been outlined by Dr. Collins. The general plan of the experiments was as follows:

The blood and cerebrospinal fluid in every instance were utilized within a few hours from the time of withdrawal. The blood was citrated, oxalated, defibrinated, or used in the form of clear serum from the clot. The materials were sometimes inoculated separately into rabbits and guinea-pigs, but more frequently a mixture of blood and spinal fluid was employed. In most cases a combination of two or more modes of inoculation was used. A rabbit or guinea-pig was usually injected both intracerebrally and intraperitoneally, and the rabbits, in addition, often received some material intravenously and intratesticularly. Intra-ocular instead of intracerebral inoculations were performed in some instances. Cultures were set up with ascitic fluid tissue medium, such as that employed for the cultivation of *Treponema pallidum* and other anaerobic treponemes;[14] also in the medium used for growing relapsing fever spirochetes,[15] and in leptospira medium.[16]

Material from Case 1 was inoculated on two occasions, six guinea-pigs and three rabbits being used in the first instance, and four guinea-pigs and four rabbits in the second. Nothing of note developed. In Cases 2, 3, 4, 5 and 6, inoculations were made in each instance into four guinea-pigs and four rabbits, with similar negative results. In Case 7, two guinea-pigs and four rabbits, and in Case 8, three rabbits were inoculated, also without any result that can be interpreted as experimental reproduction of multiple sclerosis.

Among the guinea-pigs, a number of animals showed one or more periods of high temperature, lasting sometimes for several days and being followed by irregular fever. Cultural examination of these animals usually revealed infection with a strain of paratyphoid or hog cholera bacillus. Some recovered; others remained alive, but showed marked emaciation. Rabbits also suffered to some extent from secondary infection. Some died of rabbit septicemia, the cultural and pathologic findings being typical of that infection. Occasionally a peculiar loss of equilibrium was observed, but this symptom is not uncommon in infection with *Bacillus lepisepticus*.

Repeated dark-field examinations of the blood and cerebrospinal fluid while perfectly fresh failed to reveal any spirochetes. Most of the culture tubes remained free from ordinary contaminations, but no spirochetes were found in any of them. Injections of the contents of the culture tubes into guinea-pigs and rabbits produced no symptoms of significance. Dark-field examination of peripheral or heart blood of the inoculated guinea-pigs and rabbits showed no spirochetes. In addition to blood, emulsions of liver, spleen, kidney, suprarenal glands, lymph nodes, and the brain from guinea-pigs or rabbits killed at the height of fever were carefully examined under the dark-field microscope

4. Büscher, J.: Spirochätenbefund bei multipler Sklerose, Arch. f. Psychiat. u. Nervenh. **62**: 426, 1920.
5. Speer, E.: Spirochätenbefund im Menschlichen Zentralnervensystem bei multipler Sklerose, München. med. Wchnschr. **68**: 425 (April 8) 1921.
6. Simons, A.: Zur Uebertragbarkeit der multiplen Sklerose, Neurol. Centralbl. **37**: 129, 1918.
7. Marinesco, G.: Etude sur l'origine et la nature de la sclérose en plaques, Rev. neurol. **26**: 481 (June) 1919.
8. Kuhn, P., and Steiner, G.: Ueber die Ursache der multiplen Sklerose, II, Ztschr. f. Hyg. u. Infektionskr. **90**: 417, 1920.
9. Birley, J. L., and Dudgeon, L. S.: Clinical and Experimental Contribution to the Pathogenesis of Disseminated Sclerosis, Brain **44**: 150 (July) 1921.
10. Stevenson, G. S.: Spirochete Stain in Multiple Sclerosis, Arch. Neurol. & Psychiat. **9**: 88 (Jan.) 1923.
11. Kalberlah, F.: Zur Aetiologie der multiplen Sklerose, Deutsch. med. Wchnschr. **47**: 102 (Jan. 27) 1921.
12. Pettit, A.: A propos de la nature infectieuse de la sclérose en plaques, Bull. de l'Acad. de méd. **86**: 824, 1922.
13. Gerson, M.: Zur Aetiologie der multiplen Sklerose, Deutsch. Ztschr. f. Nervenh. **74**: 251, 1922.
14. Noguchi, Hideyo: A Method for the Pure Cultivation of Pathogenic Treponema Pallidum (Spirochaeta Pallida), J. Exper. Med. **14**: 99, 1911; Pure Cultivation of Spirochaeta Refringens, ibid. **15**: 466, 1912.
15. Noguchi, Hideyo: Cultivation of Spirochaeta Gallinarum, J. Exper. Med. **16**: 620, 1912.
16. Noguchi, Hideyo: Etiology of Yellow Fever, VI, Cultivation, Morphology, Virulence and Biological Properties of Leptospira Icteroides, J. Exper. Med. **30**: 13 (July) 1919.

without a single positive finding. The usual morphologic elements were present in the citrated and defibrinated blood, in suspensions of the clot, and in organ emulsions, elements such as frequently deceive even the skilled microscopist when seen by dark-field illumination. Errors from this source have occurred in the past and are particularly apt to occur when the illumination is partial, the delicate, tremulous, beaded filaments of varying length and width appearing as if moderately motile, and behaving not unlike the leptospira group of spirochetes. By full central illumination they are shown to be thinner than the leptospiras. These filaments are abundant in blood suspensions kept for a time at room temperature, and there are many swimming forms not attached to erythrocytes. They are undoubtedly derived from altered red corpuscles. They cannot be stained by Giemsa's solution, but are sometimes brought out by Loeffler's stain for flagella. It is, of course, unlikely that Kuhn and Steiner interpreted these filaments as delicate spirochetes of the leptospira group, yet the description of their spirochete strikingly suggests the forms just referred to.

The negative results obtained in the present investigation indicate that the demonstration of *Spirochaeta argentinesis* and the experimental reproduction of multiple sclerosis in guinea-pigs and rabbits are difficult. Renewed effort with material from fresher cases is desirable.

Clinical Notes, Suggestions, and New Instruments

LEFT SUPERIOR CERVICAL SYMPATHECTOMY UNDER LOCAL ANESTHESIA IN ANGINA PECTORIS

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The recent articles of Brown and Coffee, and of Muller, have given added interest to, as well as a summary of, our present knowledge of the control of the sympathetic over the vascular system. The barrenness of the literature on this subject justifies another case report with some remarks on the technic and regional anatomy of this operation.

REPORT OF CASE

G. J., a man, aged 78, a cement worker, born in Germany, who had three healthy adult children over 50, whose father died of cancer at 84, and whose mother died of nephritis at 30, had always been robust. He always had chronic bronchitis, which he believed followed an attack of malaria in childhood. He was a moderate drinker and a very hard worker.

About three years ago, while climbing a hill, he was suddenly seized with a heavy feeling in the chest, over the precordium, which quickly disappeared on resting. Since then, similar attacks have followed exertion, with increasing frequency until February, 1923, when he gave up work, which at that time was the driving and care of a team of horses. During the month of November, 1922, he had a general arthritis, with lumbar pain. This left a residual soreness of the left shoulder, which was difficult at times to distinguish from the onset of an anginal attack. The anginal attacks at first only followed severe exertion, but in March, 1923, they began to awaken him from sleep and became more frequent and severe at night. By April, severe attacks followed any excitement or exertion, such as coughing, eating or defecation; besides these, apparently spontaneous ones became very frequent.

Rest in bed, the administration of iodids, bromids, salicylates, benzyl benzoate, iron, arsenic and calcium lactate did not delay the progress of the disease. The administration of amyl nitrite in 5 minim pearls was started, May 10, and at first it gave almost instant relief. By May 21, the patient was consuming from six to eight pearls a day. His appetite disappeared, and vomiting frequently followed an attack. With increasing frequency and severity of attacks, 1/100 grain tablets of nitroglycerin were given under the tongue every half hour as a preventive, but without success. Slight temporary improvement followed the use of spirit of glyceryl trinitrate. June 13, after weeks in bed, the patient was receiving the equivalent of 1/100 grain of nitroglycerin under his tongue, by a trained nurse, every fifteen minutes night and day, whether sleeping or waking, from fifteen to twenty-five pearls of amyl nitrite during the twenty-four hours; 2 grains of sodium nitrite and 1/4 grain of morphin every three hours. In spite of this heroic dosage, he suffered eight severe attacks in six hours, during which the family thought the patient was dying and had the last sacraments of the church administered.

At this time he was sallow, anemic and gray-haired and fairly well nourished. His wrinkled face, falling in edematous folds under his eyes, caused a sorrowful, masklike expression. There was marked arcus senilis. Entropion of both lower lids associated with narrowed palpebral openings was also present. There was no paralysis of the cranial nerves, and no visible pulsation in the cervical blood vessels. He had no enlarged glands; no tracheal tug was observed. He had a barrel shaped chest held in expansion, and the lungs were large and emphysematous. Occasionally a bronchial râle was heard. His vital capacity was 3.8 liters; there was no visible or palpable apex heat, and no precordial heave. Manubrial dulness was markedly increased. The heart was moderately enlarged, but no adventitious heart bounds were heard. Arterial sclerosis was marked. There were no irregularities in force or rhythm. The right and left radial pulses were synchronous. The abdomen was normal. There was no edema of the feet. Traces of albumin and a few hyaline casts were found in the urine. The hemoglobin was 70 per cent. The systolic pressure was 140 mm. of mercury; the diastolic, 80. The Wassermann test was negative.

Mild seizures lasted about five minutes, while severe ones might last for thirty minutes and be followed by a second attack if the nitrites were withheld for more than fifteen minutes. The onset of a seizure was usually marked by an aching sensation on the median side of the left olecranon, which persisted and extended to both the left wrist and shoulder. After a few seconds a crushing agonizing pain gripped his chest, centering over the precordium. He said his whole body seemed to tingle like "pins and needles" for a few minutes, and then the pain gradually vanished. If he was awake he told the nurse, "she's a-coming again," and then remained quiet if the attack was of moderate severity; but if severe, he might get out of bed and lie prone on his face on the floor, giving vent to slow expiratory groans, which resembled the bellow of a bull. Frequently he had awakened the neighbors, and sometimes the policeman on the beat came into the house to offer assistance. During sleep he became restless and groaned, and if the attack was mild and his nitroglycerin tablet was active and given quickly, he might not awaken.

After an attack, he was exhausted. If vomiting followed, it frequently precipitated a second attack. During an attack, no change in pupils was observable. The palpebral opening narrowed. The pulse was slightly changed, sometimes slower, sometimes a little faster. The blood pressure was difficult to get accurately, but apparently did not change in mild attacks.

After witnessing several of the severe attacks and noting the intense anguish the man was suffering, with the apparent futility of any tried medicine to ward off the rapidly approaching end, I yielded to the repeated demands of the patient and his family to try an almost unknown procedure.

With anatomies differing as to the exact location of the superior cervical sympathetic ganglion, I felt safer in following the general lines laid down by Mayo,[1] except that I used a local anesthetic. I selected the left side because there the onset and greatest severity was displayed.

1. Mayo, C. H.: The Surgical Treatment of Exophthalmos, J. A. M. A. 63: 1147 (Oct. 3) 1914.

June 14, after the patient had passed a night of terrific suffering, under 1 per cent. procain local anesthesia, I made a 3 inch incision over the anterior border of the left sternocleidomastoid muscle, with its upper end on the level of the angle of the jaw when the head was well extended. The incision was deepened until the spinal accessory nerve was recognized, and then nerve and muscle were both retracted laterad. The tips of the lateral transverse processes were almost directly under the fingers and could be readily palpated, as could the pulsation of the internal carotid artery in the carotid sheath on the median side of the incision, which might be retracted mediad while the incision exposed the tips of the transverse processes. Closely hugging the anterior surface of the transverse processes the longus colli et capitis muscle was exposed. On the anterior surface of this muscle, about 1 cm. from its lateral border, the spread out, pinkish-gray ganglion was found just posterior to the carotid sheath. It was about 2.5 cm. in length, 0.75 cm. in breadth, and ⅓ cm. in thickness, fairly firm in consistency, with three or four median and lateral branches each, and a heavier cord extending toward the head and another down the neck to unite with the median cervical sympathetic ganglion.

Teleroentgenographic Examination of Heart at Six Feet Distance from Tube

	Normal Cm.	Patient 5/22/23	Patient 7/14/23	Patient 8/14/23
Transverse diameter of aorta....	4.5	9.3	8.8	8.8
Left ventricle	6.8	9.6	10.8	9.5
Right auricle	3.3	6.2	5.1	6.3
Left auricle	4.5	6	9.3	5.8
Greatest transverse diameter.....	13	15	14.5	15.5
Greatest oblique diameter.....	14	16.8	16.3	16.6

Noting that pinching of the ganglion did not slow the heart rate to rule out the possibility of mistaking it for the vagus nerve, which at a higher level becomes fusiform in shape, I excised it in toto with as much of its several attachments as possible. This was immediately followed by a dull pain over the left ear and the mastoid and occipitoparietal region. There being no hemorrhage, the superficial fascia was closed with a few interrupted sutures of catgut, and the skin was closed with horsehair without drainage.

The patient was returned to his room feeling comfortable, after being absent from it for fifty-six minutes, of which from seven to ten were consumed in changing soiled drapings, the result of a severe attack followed by vomiting and the administrations of nitrites.

If in doubt at any time, there are landmarks that will quickly orient one. While finding the spinal accessory nerve, the submaxillary gland will protrude into the upper end of the incision, and just posterior to it the lateral belly of the digastric muscle. Mediad the pulsation of the internal carotid artery is always available in the carotid sheath, which need not be opened. In the sheath at this level, just anterior and lateral to the artery, is the internal jugular vein; and posteriorly, between vein and artery, is the vagus nerve. Many lymph nodes will be encountered, which if diseased and enlarged from other causes might give considerable difficulty to the dissection, but should offer none in their identification. The second and third cervical nerves lie posterior and lateral to the respective transverse processes. The fourth cervical nerve, from which springs the phrenic, lies at the very lower end of the incision and is out of the way unless one wishes to excise the median cervical ganglion.

With the exception of the first two nights after operation when two ¼ grain doses of morphin were administered for sleep, no morphin, amyl nitrite or sodium nitrite were given. For the first two weeks, nitroglycerin, 1/100 grain, was given in every half hour, and now, after two months, about 1 grain every two hours during the day and every three hours during the night.

July 14, one month after the operation there had been no severe attack; the patient was cheerful, was eating and sleeping better, and was gaining in strength and weight. The left eye seemed slightly depressed, but no narrowing of the palpebral opening was appreciable. The wound was entirely healed and barely visible. There was some hyperesthesia of the left ear, and the mastoid and upper posterior triangle of the neck; the pulse was regular and ranged at about 75 to the minute. There was no paralysis of the head or neck. The systolic blood pressure was 132; the diastolic, 78. A soft systolic bruit was heard over the base and apex.

August 14, two months after the operation the patient was very cheerful and contented, and said that no operation was needed on the right side. His appetite was good, and he slept well, he could also walk a mile a day without discomfort. He took a normal interest in the daily paper and the happenings of his home and in the neighborhood. The bruit over the heart had disappeared. The pulse rate averaged 70. The systolic pressure had dropped to 110, the diastolic, to 75. He was not so short of breath as formerly. His greatest difficulty came during and after eating, when he had a feeling of pressure around the heart.

Teleroentgenographic examination of the heart disclosed that the diameter of the aorta had decreased.

So far there has been effected a complete relief from all severe symptoms.

The results have justified the means used in this case, and it is a justifiable procedure in those severe cases of angina pectoris that do not respond to rest and diet and the administration of nitrites. The incision over the anterior border of the sternocleidomastoid muscle gives a quick easy approach, and it may be safely attempted under local anesthesia when the condition of the patient will not justify the use of a general anesthesia.

CONDITION FIVE MONTHS AFTER OPERATION

November 12, five months after operation, the patient reported that he was in better health than had existed during the last two years. He had gained 26 pounds (12 kg.), and his waist measure had increased 4 inches in circumference. He frequently slept six hours at a stretch, and ate of everything. Overeating, however, was followed by a feeling of fulness and pressure on the level of the sixth rib at its cartilage articulation on the right side. He had not experienced any pain in the heart region, but had an aching pain in both arms and hands when they were cold or he was cold and when he became excited. This left when his hands were warmed. He experienced quicker relief if he took a minimum of spirit of glyceryl trinitrate, with the application of heat. He walked around all day without discomfort, and frequently walked 2 or 3 miles without resting, without discomfort. The scar in the neck was barely discernible. The scar was tender on pressure at the upper end. There was a just appreciable depression of the left eye. The pulse was 72; respiration, 20; systolic pressure, 120; diastolic, 78. There was an occasional extrasystole. No abnormal sounds were heard. There was some irregularity in the force of the beats. Red blood cells numbered 4,900,000; hemoglobin, 87 per cent.

202 Columbia Terrace.

A CASE OF BILATERAL RENAL HEMORRHAGE

ABRAHAM STRACHSTEIN, M.D., NEW YORK

J. S., a man, aged 29, single, salesman, referred to me by Dr. M. H. Hazay, May 25, 1921, had never had urinary or any other disease. About three years ago his attention was called to the fact that the urine appeared bloody; since it caused him no inconvenience whatsoever, he did nothing to relieve the condition. The family history was negative. Recently he applied for a life insurance policy, and was rejected because of hematuria. The patient never had any renal colic, never noticed any gravel in the urine, and was free from any symptoms except the blood from the genitourinary tract.

Cystoscopic examination disclosed neither growth nor stones; the bladder mucosa was moderately engorged with both ureter openings perfectly normal except for the appearance of blood-tinged urine oozing from the two sides alike. Laboratory examination of catheterized specimens[1] showed

1. The patient was catheterized at least four times.

a large amount of blood present, but no other microscopic elements. No tubercle bacilli or renal casts were present. The roentgen ray showed neither abnormal size of kidney nor presence of any shadows.

We lost track of the patient until Feb. 28, 1922, when he returned, utterly discouraged. He had been treated by several physicians, as well as at one prominent hospital uptown, but the bleeding still persisted. He was advised to have his tonsils removed, which was done, without any effect whatever. Cystoscopy was again performed, with the same findings. Five cubic centimeters of silver nitrate solution, 0.5 per cent., was injected into each renal pelvis, and allowed to escape slowly through the ureteral catheters. This procedure was again repeated in five days, so that in all the patient received five treatments. Although the condition had existed for several years, the few local treatments totally cleared it up, so that the patient voided a perfectly clear urine.

Although the treatment resorted to in this case brought about a quick and satisfactory result, nevertheless the exact diagnosis is speculative. The literature reports many cases of renal hemorrhage of undiagnosed origin, or, to be more exact, hemorrhage without localizing a pathologic lesion as a basis for it. Hemorrhage, however, from both sides is rather rare. Of course, we exclude from this group such cases as nephritis with anatomic changes, toxemias, renal calculi, tuberculosis or neoplasms. E. L. Young,[2] for instance, refers to these cases as prenephritic condition of the kidneys. Why the case reported here cleared up by local treatment so promptly could hardly be explained by his theory.

It appears plausible, in view of the result obtained, that the diagnosis in our case was one of a bilateral papillomatous pyelitis, the hemorrhages having been due to vegetations in the pelvis and calices.

17 East Thirty-Eighth Street.

A CASE OF POSSIBLE THIRD INFECTION WITH SYPHILIS

LOYD THOMPSON, M.D., HOT SPRINGS NATIONAL PARK, ARK.

Since the advent of the intensive methods of treating syphilis, reports of second infection with this disease have been of comparative frequency. However, no report of a third infection has come to my notice, and a search of the available literature has failed to find such a report. Therefore this case seems of interest.

A. J., a man, aged 32, first consulted me, April 25, 1916, complaining of a sore on the penis. The family and past history, with the exception of the venereal history, were unimportant. He stated that he had had a sore on the penis in 1911, which was diagnosed clinically as a syphilitic chrancre and for which he received one intramuscular injection of arsphenamin. He denied any further evidences of or treatment for syphilis.

Examination revealed an eroded, circular lesion about 1 cm. in diameter on the dorsum of the penis about 2 or 3 cm. back of the corona. This lesion was a typical clinical chrancre, moderately indurated, and contained many spirochetes. No scar of the 1911 lesion could be found, although the patient stated that it was close to the present one. He further stated that the present lesion had begun with a small "pimple" about five days previously and about two weeks after a suspicious intercourse. No treatment had been instituted except that the patient had washed the lesion with hydrogen peroxid.

There was a moderate bilateral inguinal adenitis, but no other lymphatic glands could be found enlarged. The blood Wassermann reaction was negative, and the neurologic examination did not reveal any evidences of involvement of the central nervous system.

The patient was placed on moderately intensive antisyphilitic treatment, including weekly intravenous injections of arsphenamin and daily intramuscular injections of mercuric benzoate. In all, he received six injections of 0.4 gm. of the arsphenamin and thirty injections of 0.02 gm. of the mercury. During this time the penile lesion completely healed, leaving a small, white scar, while the Wassermann reaction remained constantly negative.

I did not see the patient again until May 10, 1923, when he once more came to me complaining of "a sore on the penis." Since I had seen him in 1916 he had received two courses of treatment similar to the one I had given him, one in December, 1916, and January, 1917, and one in January and February, 1918, although the Wassermann reaction on several occasions had remained negative. The last test that he had had was in the summer of 1920.

Since February, 1918, he had received no antisyphilitic treatment and had been in good health with the exception of a moderately severe attack of influenza in November, 1918.

Examination revealed a small, indurated, papular, eroded lesion about 0.5 cm. in diameter just to the right of the frenum, which contained many spirochetes. This lesion had been present for three days and had not been treated. The patient admitted a suspicious intercourse one month previous, although he had been married in 1920, and stated that he had been exceedingly careful to wash with a solution of potassium permanganate following the intercourse.

There was a slight, bilateral, inguinal adenitis; and one or two nodes in the cervical region could be palpated. The blood Wassermann reaction was negative, and the neurologic examination showed nothing suspicious of central nervous system involvement. However, after considerable urging, the patient consented to lumbar puncture. The spinal fluid was normal.

The patient was placed on antisyphilitic treatment, receiving eight intravenous injections of arsphenamin and thirty-five intramuscular injections of mercuric chlorid during a period of five weeks. The penile lesion healed rapidly, leaving only a faint scar.

COMMENT

That the infection which occurred in 1911 was syphilitic there seems only slight room for doubt. The clinical diagnosis was made by an experienced physician, and the lesion healed rapidly following the intramuscular injection of arsphenamin. Furthermore, it has been observed by me and by other syphilologists in the early days of the use of arsphenamin that one intramuscular injection of the drug has apparently effected a cure in undoubted syphilis. The second and third penile lesions in this case were unquestionably syphilitic, so we were dealing with a second infection and possibly with a third infection with *Spirochaeta pallida*.

2. Young, E. L., Jr.: Renal Hematuria as a Symptom of a Prenephritic Condition of the Kidneys, Tr. Am. Urol. A. **12**: 220, 1921; Surg., Gynec. & Obst. **31**: 478 (Nov.) 1920.

TREATMENT OF PERTUSSIS WITH INTRAMUSCULAR INJECTION OF ETHER

CLEON C. MASON, M.D., LONG BEACH, CALIF.

This is a preliminary report of twenty-six cases of pertussis treated by the deep intramuscular injection of ether as described by Genoese.[1] The technic as described has been followed except that slightly larger amounts of ether were used.

Of the twenty-six patients, with ages ranging from 6 months to 8 years, sixteen stopped coughing after eight injections and did not cough again; six were definitely benefited, i. e., the paroxysms became less frequent and less severe, and in four cases the course of the disease was not altered in any way.

Care was taken in order to be certain of the diagnosis, as a mild epidemic was prevailing; either other members of the family had pertussis or the child was having typical attacks of whooping, or there was in every case a definite history of exposure.

Of the sixteen patients in whom the cough stopped, none had whooped to exceed four days, six had whooped for the first time on the day the treatment was instituted, and the other ten had whooped from two to four days. Of the six patients definitely benefited two had vomited but had not whooped (later both of these patients developed a mild whoop), and the other four had been whooping for from

1. Genoese, Giovanni: Policlinica, Rome **29**: 1105 (Aug. 21) 1922.

four to seven days. Of the four not benefited, one had never whooped, but proceeded to develop a severe attack which massive doses of opiates did not alleviate; the other three had been whooping more than seven days.

These patients were all seen in private practice, and in each instance the parents were told that the treatment was purely experimental and that no definite results could be promised. In a number of cases not included in the series, the parents failed to bring the child back after a first or second injection. The reports from the parents regarding the child's progress were apparently quite candid, varying from enthusiasm to quite the opposite.

The ether injections were made with a long, fine platinum needle, deep into the buttocks. Commercial anesthesia ether was used. In only one instance was there any local reaction. This child developed a large area of induration, which promptly subsided on the application of heat locally. After about three hours, as a rule, there are no evidences of local soreness.

The dosages used were: First day, 0.5 c.c., two injections; second day, 1 c.c., two injections; third day, 1.5 c.c., two injections; fourth day, 2 c.c., two injections; fifth day, 2 c.c., one injection; each day thereafter, the same amount as on the fifth day. These dosages were slightly reduced for children under one year. The injections did not seem especially painful. One girl of 7 said that they felt cold and stingy.

Within thirty minutes after the injection there was a decided odor of ether on the child's breath, which usually persisted for some three to six hours. Several specimens of urine, collected at hourly intervals after the injection, were examined, but in no instance were the acetone bodies found.

From the figures given it will be noted that 60 per cent. of the patients stopped coughing and were apparently cured; 24 per cent. were definitely benefited; 16 per cent. failed to respond or became definitely worse. In nearly all cases in which any good was accomplished, the parents remarked on the increased appetite and improved general condition.

If these figures can be verified by a larger series of observations in some institution where the patients can be carefully checked, and the results accurately controlled, it would appear that in the intramuscular injection of ether we have a treatment for pertussis which, although not wholly certain, will at least go farther in controlling the disease than either the opiates or the vaccines.

Recently, four additional cases were treated by the high rectal injections of 6 c.c of a 40 per cent. ether solution in olive oil. The injections were repeated every six hours. Two of these patients stopped coughing quite promptly, and two failed to respond. This method was employed in order that the treatment might be carried out at home; and, if a larger series proves its efficacy, it will make it much simpler of use and at the same time avoid the chief drawback to the method—the use of hypodermic injections.

It is quite obvious from the figures that the earlier the treatment is instituted, the greater the possibility of good results.

POSTVACCINAL CUTANEOUS REACTIONS

H. J. TEMPLETON, M.D., HIAWATHA, UTAH

Mrs. C. W., aged 22, never previously vaccinated, was vaccinated during December, 1922, by her mother, a nurse in my employ. This was without my knowledge. The second day thereafter the patient applied to me to have a number of moles removed from her face and neck for cosmetic reasons. Eight or ten of these were easily removed at the first sitting by means of fulguration.

Two days later the patient came to me complaining that all of the areas that had been fulgurated itched and burned. The next day all these areas showed small papules. This led me to make a further investigation, in which I found that the vaccination which her mother had performed was taking nicely. Not only the original scarified area on the arm but also the fulgurated moles "took" at the same time. They all passed through the stages characteristic of a successful vaccination.

By extreme care, the marks on the face were kept small; but, even at that, they left small pock marks.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

TETANUS ANTITOXIN CONCENTRATED (See New and Nonofficial Remedies, 1923, p. 284).

Cutter Laboratory, Berkeley, Calif.

Tetanus Antitoxin for Human Use.—Marketed in syringes containing 1,500 and 5,000 units each.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1923, p. 284).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxin-Antitoxin Mixture.—Each cubic centimeter represents 3 L+ doses of diphtheria toxin neutralized with sufficient antitoxin to conform to the toxicity requirements of the U. S. Public Health Service. Marketed in vials containing, respectively, 1 Cc. and 50 Cc., and in syringes containing one immunizing treatment (3 Cc.) with a sterile needle for each injection.

ANTI-ANTHRAX SERUM (See New and Nonofficial Remedies, 1923, p. 287).

Cutter Laboratory, Berkeley, Calif.

Anti-Anthrax Serum for Human Use.—Marketed in double-ended vials containing 50 Cc. for intravenous injection. Smaller amounts for injection into the tissues about the pustule can be removed and injected with a Luer or other suitable syringe.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1923, p. 294).

Cutter Laboratory, Berkeley, Calif.

Rabies Vaccine-Pasteur.—The virus is prepared according to the method of the Hygienic Laboratory of the U. S. Public Health Service. The cords are ground in a small amount of 50 per cent. glycerin and shipped daily. These emulsions are diluted by the physician at the time of injection in small individual dose syringes of sterile physiological solution of sodium chloride that are furnished with the treatment. The treatment consists of 21 daily injections.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1923, p. 323).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxin for the Schick Test.—Marketed in packages of two vials, one containing a definite volume of diphtheria toxin and the other containing sterile physiologic solution of sodium chloride with which the toxin is to be diluted before administration. The diluted toxin is of such a strength that 0.1 Cc. given intracutaneously constitutes a 1/50 M.L.D. There are approximately 50 test doses in each package.

CARBON TETRACHLORIDE MEDICINAL (See THE JOURNAL A. M. A., April 21, 1923, p. 1143).

Carbon Tetrachloride (Human Use)-P. D. & Co.—A brand of carbon tetrachloride-N. N. R. Supplied only in the form of capsules.

Parke, Davis & Co., Detroit, distributor. No U. S. patent or trademark.

Capsules Carbon Tetrachloride (Human Use)-P. D. & Co., 20 minims.

VERONAL (See New and Nonofficial Remedies, 1923, p. 63).

The following dosage form has been accepted:

Elixir of Veronal: Each fluid drachm contains veronal 2 grains in a menstruum containing alcohol 33.5 per cent.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1923, p. 284).

E. R. Squibb and Sons, New York.

Diphtheria Toxin-Antitoxin Mixture (New Formula)-Squibb.—Each cubic centimeter represents 0.1 L+ dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of three vials, each vial contains 1 Cc. of the mixture; and in vials containing, respectively, 10 Cc. and 20 Cc. of the mixture.

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SATURDAY, DECEMBER 22, 1922

WHERE ARE THE BILE PIGMENTS FORMED?

For three quarters of a century it has been known that a pigment which can be crystallized in orange-colored rhombic plates occurs in old blood extravasations. This "hematoidin" of Virchow has long been regarded as identical with the pigment bilirubin, which is a normal constituent of human bile; and the relationship is one of the widely accepted evidences of the formation of the bile pigments from the hemoglobin of the blood. It is known from direct experiment that when bilirubin is introduced into the circulation it can be "picked out" by the liver and excreted into the bile. Consequently, it has long been a question whether the biliary pigments are formed elsewhere in the body and merely eliminated by the hepatic cells, or whether the latter actually have the capacity to produce bilirubin and its derivatives within their own substance. The answer to this question has an important bearing on the genesis of jaundice. If the bile pigments are regularly produced elsewhere than in the liver, it must be assumed that the symptoms of icterus are due to an inability of the hepatic parenchyma to excrete them in a normal fashion; whereas, on the hypothesis of an intrahepatic genesis of the pigment, the occurrence of jaundice may equally well be due to obstruction sufficient to stop the outflow of bile, which then enters the capillaries of the liver and also, to a lesser extent, the lymphatics.

Several years ago, American investigators gave a directive turn to the question by demonstrating that the change from circulating hemoglobin will take place as promptly in mammals from which the liver has been excluded from the circulation as in normal individuals. A recent writer [1] has remarked that for ten years these experiments have been widely regarded in all countries as an irrefutable proof that the liver is not necessary for the prompt transformation of circulating hemoglobin into bilirubin, even by investigators who have not been able to reconcile some of their own observations with such a view. A reinvestigation of the subject by Rich,[1] in the Department of Pathology at the Johns Hopkins University, has shown that the experiments which have led to the conclusion that circulating hemoglobin can be rapidly transformed into bilirubin outside the liver are not valid because the method employed—that of observing changes in animals with the so-called "head-thorax" circulation supposedly independent of the rest of the viscera—need not actually exclude the liver from the circulation. The presence of unsuspected collateral circulation must always be reckoned with. In the latest investigation the liver was not merely tied off from all obvious vascular connections but was actually extirpated, whereupon the fate of hemoglobin introduced into the blood stream was studied. Transformation to bilirubin was never observed under such conditions. Rich regards it as necessary, therefore, to abandon the recently adopted belief that there exists a facile and ready mechanism for the transformation of circulating blood pigment into bile pigment outside the liver, and to return to the old view that the transformation takes place normally only within the liver itself.

It will be appreciated that this conclusion is not without significance in relation to the process by which the chemical débris of the continually disintegrating erythrocytes of the blood is disposed of. The prevailing view on the normal fate of hemoglobin is that it is broken up into globin and hematin, the latter in turn yielding hematoidin—thrown off in the bile as bilirubin—and iron-containing materials of uncertain chemical constitution, which are retained. The facts are that a disintegration of red corpuscles takes place constantly, in sickness and in health, and that the body has often to meet new demands and situations thereby arising. The rest of our information is essentially speculation; and, as a recent reviewer [2] has cleverly commented, the reader will not fail to note that much of current theory on blood destruction attests to the theorist's abhorrence of a vacuum. It should be clearly emphasized, however, that the establishment of the liver as the chief factor in the genesis of bilirubin out of circulating hemoglobin does not preclude pigment production in the tissues under such unusual circumstances as are represented by extravasations of blood; nor does it confine the origin of bilirubin to the hepatic cells proper. As Rich has carefully pointed out, the sole function of the liver cells in regard to bilirubin may be an excretory one, and it may be the Kupffer cells—those peculiar vascular structures around which so much speculation has centered of late—that possess the function of converting hemoglobin into bile pigment. The "tempting advantages" of such a view championed by Eppinger [3] remain to be confirmed.

1. Rich, A. R.: Experimental Studies Concerning the Site of Origin of Bilirubin, Bull. Johns Hopkins Hosp. **34**: 321 (Oct.) 1923.

2. Rous, Peyton: Destruction of the Red Blood Corpuscles in Health and Disease, Physiol. Rev. **3**: 75 (Jan.) 1923.

3. Eppinger: Die Hepato-Lienalen Erkrankungen, Enzyklopädie der klinischen Medizin, Berlin, 1920.

THE DIFFICULTIES OF DIETARY REFORMS

The determination of the etiology of a disease, and the discovery of adequate means to prevent it, might be supposed to give assurance of its rapid disappearance. This is by no means always the case. When scientific knowledge runs counter to custom, individual or racial psychology, or economic or geographic conditions, its mandates do not always become established as readily as they might seem to deserve. An instance in practical illustration is afforded by the incidence of beriberi in the Far East. The relation of the disease to dietary deficiencies has been recognized for some time. In certain countries the most important single factor is admittedly the use of polished rice without adequate amounts of vitamin-bearing supplements. The danger would seem to be easily averted by the substitution of unpolished rice for the more modern highly milled product, by the more liberal inclusion of protective foods in the diet, or by a combination of these schemes. Nevertheless an expert [1] familiar with the local conditions has just reported that, although it has been known for twenty-five years that living on a regimen in which polished rice predominates is dangerous to health, while unpolished rice entirely protects against the possibility of the appearance of beriberi, every year over eastern Asia numerous cases of the disease are found in man.

This unfortunate condition is in part the outcome of the preference of the public for the nicely polished rice. The latter has the advantage of somewhat better keeping qualities, in contrast to the less milled product. Jansen [1] has pointed out that up to the present time the predominant part of the population of Java, where his experience has been gained, consists of people living "next to the land" who mill their own rice. The cereal is so pounded by them for use that only a part of the pericarp is removed. The remaining rice grain still contains considerable vitamin B—enough, apparently, to protect the population against a deficiency leading to beriberi. Now, however, as the Dutch East Indies are becoming changed from a rather exclusively agricultural country into a more or less industrial country, a great danger is almost certain to develop, if the population is not going to use other agricultural products besides rice. As Jansen argues, if Java is to be industrialized in the modern sense, much of the population will have neither time nor opportunity to "pound" its own rice.

Progress, which inevitably brings changes in its wake, often, as in this case, initiates unanticipated difficulties. It seems almost ridiculous to speak of the dangers of progress. We need to realize, however, that society is a complex organization, and that all parts and mechanisms need to be kept adjusted and attuned to one another. No one would wish any longer to eliminate the automobile or electrical transmission of power; yet each has introduced specific new dangers into the communities that enjoy the benefits. Coercion fails to bring the desired results in a country accustomed to democracy. Education seems to be the most promising measure of defense against hidden dangers. It is usually a slow process, in which the educator needs constant encouragement and support lest he waver from sheer weariness or despair. Medical history affords eloquent testimony of this.

1. Jansen, B. C. P.: On the Need of Anti-Beriberi-Vitamin of the Animal Organism and on the Amount of this Vitamin in Different Foodstuffs, Mededeelingen van den burgerlijken Geneeskundigen Dienst in Nederlandsch-Indië, Part I, p. 1, 1923.

THE COMMON COLD, AGAIN

The "common cold" is one of the commonest of diseases, and there are few about which so little of a definite character is known. From time to time there is a recrudescence of theories as to the causes of common colds; then comes the period of some special form of therapeutic attacks based on the newest hypothesis; whereupon the vaunted treatment falls into desuetude. It is unfortunately easy to secure "evidences" of efficacy for all manner of proposed reliefs for mild, self-limiting disorders. The cure follows; *post hoc ergo propter hoc*. The extreme enthusiasts for the alleged microbial causation of the common cold have no ear for other possible factors in its incidence; and consequently they must marshal all the antibacterial forces of medicine to combat the cold. Sometimes the superior direction is given to isolation; or again to local antisepsis, or finally to vaccine therapy. It is, however, admittedly a hidden foe that they are trying to subdue. Whether it may appear in the guise of a simple bacillus or in the more evasive form of a filtrable virus no one has really discovered. The cocksureness of the advocates of the theory of infection may be illustrated by a quotation from a recent popular estimate of the subject. "This much we are certain of already: that the majority of so-called 'colds' have little or nothing to do with exposure to a low temperature, that they are entirely misnamed, and that a better term for them would be 'fouls.' In fact, this proportion can be clearly and definitely proved and traced as infections spreading from one victim to another. The best place to catch them is not out-of-doors, or even in drafty hallways, but in close, stuffy, infected hotel bedrooms, sleeping cars, churches, and theaters." [1]

Let us admit promptly and frankly that it is not difficult to defend the infection hypothesis; and we may perhaps recall without prejudice that it was once defended for beriberi and for pellagra with comparative success. But a malady that entails so much human discomfort, gives such dangerous opportunities to secondary invasions, and interferes so often with personal plans as does the common cold deserves critical study. It cannot be dispelled or averted by offhand pronounce-

1. Hutchinson, Woods: Preventable Diseases, Boston, Houghton, Mifflin Company.

ments. Perhaps it will be worth while to listen to an occasional reactionary comment, such as Jordan [2] and his associates at Chicago have recently expressed. Statistical and laboratory data gathered by them from more than two thousand university students in different parts of the United States indicate to these investigators that the common cold is not a simple type of infection, perhaps in some instances not even an infectious process at all. They assert that numerous factors are undoubtedly concerned in the production of a cold; and their evidence does not support the view that a cold is always due primarily to the entrance of some virus from without the body. On the contrary, it appears to them that internal body changes may be the more important factors. These changes are in turn associated closely with outside influences. This general conclusion is not out of harmony with the recently reported experiments of Olitsky and McCartney [3] at the Rockefeller Institute for Medical Research, who have apparently produced typical symptoms in healthy persons by using as an incitant a filtrable agent obtainable from the nasopharyngeal washings of patients during the very early hours of the onset of a cold. For they also stated that transmission failed in cases in which the colds were caused by exposure to the elements, or chilling the body, and not by definite contact with other cases of common colds.

The Chicago bacteriologists have not hesitated to jeopardize the security of some further beliefs of the satisfied hygienists. "Resistance building" has been a favorite tenet in the prophylactic doctrine. The cultivation of an excellent physical condition through exercise, the habit of sleeping with open windows amid all rigors of climate, the frequent use of the cold bath—these are some of the practices expected to lessen the liability to respiratory disorders. Yet the Chicago statistics suggest that exposure to cold and the other lauded preventive measures are by no means as successful as they are supposed to be; nor do the data show that operations on the nose or throat result in marked reduction in the frequency of colds. Various investigators in recent years have failed to find any one species or group of bacteria to predominate in the upper respiratory tract during a cold. We may repeat our own earlier statement [3] that evidently there are colds and colds. To this we may now add the conservative conclusions of Jordan, Norton and Sharp.[2] Whether or not a cold is the result of a specific infectious process in unknown. It is clear, however, that outside influences, particularly those involving the chilling of the body, may serve, they say, to induce a cold, even if these influences cannot be regarded as the most important etiologic factors.

2. Jordan, E. O.; Norton, J. F., and Sharp, W. B.: The Common Cold, J. Infect. Dis. **33**: 416 (Nov.) 1923.
3. Olitsky, P. K., and McCartney, J. E.: Studies on the Nasopharyngeal Secretions from Patients with Common Colds, J. Exper. Med. **38**: 427 (Oct.) 1923; The Common Cold, editorial, J. A. M. A. **81**: 1697 (Nov. 17) 1923.

Current Comment

"A" FORMULA OR "THE" FORMULA?

A quarter of a century ago, when the proprietary evil in the United States was at its worst, a common piece of advertising deceit was that of the fake formula. Knowing that reputable physicians will not prescribe secret remedies, some proprietary medicine concerns resorted to giving what purported to be a formula. On its face, the "formula" was impressive—at least to one not an expert in chemistry. Actually, such formulas were pure fabrications, chemically impossible. The real composition was seldom divulged by such feints at honesty. After the American Medical Association created its own chemical laboratory, the Association chemists demonstrated repeatedly the absurdity of the seriocomic chemistry of even some of the better grade of pharmaceutic manufacturers. It was not long before the crude chemistry and cruder dishonesty of pharmaceutic concerns began to disappear. Yet today there are still a few firms that endeavor to lend plausibility to their wares by resurrecting old methods. On another page [1] is a report of the Council on Pharmacy and Chemistry on Gly-So-Iodonate. The product is exploited to the profession as "the bactericide the medical world has searched for since the days of Lister." A "formula," both qualitative and quantitative, appears on the label. Chemically, the formula is absurd. As the report shows, some of the "declared ingredients" are obviously incompatible, while the chemical laboratory has found that other ingredients are not present in the amounts claimed. Physicians are being urged to use this unscientific mixture. The favorite method of approach, however, seems to be through industrial concerns; most of the inquiries regarding the product have been from physicians connected with industrial concerns seeking advice in order to present it to the respective business managers. Large employers of labor who seek to protect their employees from infection hazards should be given the facts regarding the probable value of vaunted proprietary germicidal agents. From a standpoint both of economy and of rational procedure, it is evident that there are plenty of such agents which can be used to better advantage than this nostrum. Mercuric chlorid is still a favorite, and convenient size tablets are listed by all good pharmaceutic houses; and, should the coagulating action of mercuric chlorid be undesirable, there are on the market accepted brands of potassium mercuric iodid [2] (which may be considered the active ingredient in Gly-So-Iodonate though not declared); there are also the chlorin antiseptics,[3] the tried and true official tincture of iodin—and a host of others. Of course, the

1. Gly-So-Iodonate: Report of the Council on Pharmacy and Chemistry, this issue, page 2132.
2. The following brands are described in New and Nonofficial Remedies, 1923: Mercury and Potassium Iodide, Merck; Mercury and Potassium Iodid, P. W. R.; Kalmerid Germicidal Tablets Potassium Mercuric Iodide, Davis and Geck. Solutions can also be prepared extemporaneously: mercuric chlorid, 0.06 gm.; potassium iodid, 0.6 gm.; water to make 100 c.c
3. Surgical Solution of Chlorinated Soda, N. N. R. (Dakin's Solution) may be prepared according to methods described in N. N. R., or one of the accepted proprietary sodium hypochlorite solutions may be employed. There are also a number of accepted brands of Chloramine-T and Dichloramine-T described in New and Nonofficial Remedies, 1923.

choice of an antiseptic depends on the condition for which it is to be used. Certain it is, however, there is no scientific basis for mixing antiseptics in any such hodgepodge manner as is exemplified by the irrational and mislabeled Gly-So-Iodonate.

THE DIMENSIONS OF THE HUMAN HAND

Physique is in many respects an expression of heredity. This biologic factor enters into the organism throughout all its stages of development. The egg, Conklin [1] writes, is not one being and the embryo another, and the adult a third, but the egg of a human being is a human being in the one-celled stage of development, and the characteristics of the adult develop out of the egg and are not in some mysterious way grafted on it or transmitted to it. On the other hand, there can no longer be any question that environmental factors also affect the make-up of the individual as well as such features of his performance as are due to inherited "constitution." Latterly, the rôle of food as a non-hereditary influence in determining physical status has received considerable attention. Rational exercise has long been realized to influence development in some instances to the extent of producing permanent effects. Special vocations may bring about a similar result, though it cannot always be differentiated easily from possible heredity influences. An interesting illustration has arisen lately as an outcome of a large number of measurements of the hands of persons engaged in various occupations. Brezina and Lebzelter [2] of Vienna have observed that vocations involving manual labor affect the breadth and thickness of the hand, but not its length. The variations in the latter seem to be associated with racial and other inherited influences that are in no way connected with industrial factors. The two-dimensional enlargement of the hands of persons engaged in manual tasks calling for considerable muscular effort is in the nature of a functional hypertrophy involving the skin and contractile tissues. Whether the bones also become enlarged has not been ascertained. It is significant to learn that in so small a part as the human hand the respective effects of heredity and vocation can be distinguished to some extent.

VACCINATION WITH BACTERIUM PNEUMOSINTES

The rather impressive work of Olitsky and Gates with the micro-organism that they have found in influenza and have named *Bacterium pneumosintes* has naturally called for confirmatory and supplementary experimentation. Particularly does the observation of antibody formation in inoculated animals suggest human vaccination as a test of the specific relationship of this organism to influenza. As a preliminary to such a test, Olitsky and Gates [3] injected thirteen volunteers subcutaneously with a vaccine prepared from two strains of *B. pneumosintes*. Local reactions of mild and transitory character were noted, while constitutional reactions were observed infrequently. A transitory leukocytosis was produced by the vaccination, and specific agglutinins appeared in the blood serum. The innocuous character of the reaction encouraged definite experimentation on a larger scale, and a cooperative investigation was carried out on volunteers from the army at Fort Myer, Va., and at Governors Island, N. Y. A recent report has been made of the findings.[4] The conditions at Fort Myer were considered favorable, as a definite epidemic of influenza occurred and there was a control group. In the age group 20-24 there were thirty-one cases in the 183 unvaccinated controls (16.8 per cent.) and thirty-eight cases in 202 vaccinated persons (18.8 per cent.). At Governors Island there was no epidemic in either group, although clinical influenza occurred on the island. In the island groups under observation there were only two cases among the controls and five among the vaccinated. Some of the latter were considered quite typical, clinically. The interesting observations set forth in Major Nichols' article do not indicate that vaccination with *B. pneumosintes* confers any decisive protection against the present-day disease that goes by the name of clinical influenza: As is well known, attempts at transmission of influenza have been made with nasal secretions, with pure cultures of *Bacillus influenzae* and with other organisms, but never, so far as we know, with *B. pneumosintes*. Possibly such experiments would throw further light on any etiologic relationship of this organism.

TEA VERSUS COFFEE: AN EMBARRASSING CHOICE

Many of the so-called "stimulants" that have found widespread use by man have recently been the subject of critical consideration. Fisher and Fisk, in "How to Live," state without reservation that the best rule for those who wish to attain the highest physical and mental efficiency is total abstinence from all substances that contain poisons, including spirits, wine, beer, tobacco, and even coffee and tea. Not a few persons among the millions of our population evidently prefer to "take a chance" on the "milder" sorts of beverages, among which tea and coffee are usually classed. The same writers that prepared the "total abstinence" dictum quoted admit that the exact extent to which the "milder poisons" are injurious has not yet been scientifically settled. Both tea and coffee are known to contain the alkaloid caffein. Furthermore, there are persons who still declare that the actions of tea and coffee on the nervous system are so unlike that the effects cannot be explained by their caffein content alone. A decision on this point at least is now available. Investigations by the hygienist Lehmann [5] at Würzburg have shown that the exhilaration or wakefulness, the diuresis and the circulatory manifestations depend primarily on the dose of caffein ingested, whether it is derived from tea or from coffee. Evidently the choice between these is analogous to that between chocolate cream drops and chocolate caramels, which has puzzled many a youthful purchaser.

1. Conklin, E. G.: Heredity and Environment, Princeton University Press, 1917, p. 108.
2. Brezina, E., and Lebzelter, V.: Ueber die Dimensionen der Hand bei verschiedenen Berufen, Arch. f. Hyg. **92**: 53, 1923.
3. Olitsky, P. K., and Gates, F. L.: J. Exper. Med. **37**: 471 (April) 1923.
4. Nichols, H. J.: Army M. Bull. (Oct. 15) 1923.
5. Lehmann, K. B., and Weil, H.: Vergleichende Versuche über die Wirkung von Kaffee und Tee, Arch. f. Hyg. **92**: 85, 1923.

Association News

OFFICIAL STATEMENT ON MEDICAL LICENSURE SCANDAL

Executive Meeting of Board of Trustees Issues Public Announcement

At the meeting of the executive committee of the Board of Trustees held December 12, it was decided to issue a statement for the public on the position of the American Medical Association relative to the recent scandal in medical licensure. In accordance with this action, the committee has issued the following statement to the press:

For more than twenty years, the attention of the public has been regularly directed, in official publications of the Association, to the evils from which the present scandal arose. The existence of low grade medical schools which refused to raise their standards, which refused to permit inspection and which refused even to submit lists of their students has been regularly noted. The dangers of multiple licensing boards in certain states which issued permits to practice to men who could not qualify for or successfully pass the regular boards have also been made the subject of warning statements. Since 1918, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has published annually the fact that the Connecticut and Arkansas eclectic licensing boards were apparently serving as clearing houses for low grade institutions in Missouri. In 1920, THE JOURNAL pointed out that Connecticut, through its eclectic board, was licensing men who had not studied in eclectic medical schools, and even worse, was licensing some men who apparently had not completed a medical course in any school. The American Medical Association is a body which has no punitive powers. It could not arrest and prosecute; it could only point out to state officials the festering evils which required their official attention. Nevertheless, public officials have consistently disregarded these announcements until the sensational publicity accorded an exposé by a St. Louis newspaper forced the matter on their attention.

The statement of a man under indictment in connection with diploma frauds in Missouri, that there are more than 25,000 physicians in the United States practicing with false credentials has been made the subject of numerous editorials, in which the medical profession has been urged to keep these impostors from deluding the public. At the headquarters of the American Medical Association is a card index which contains a card for every man licensed to practice medicine in the United States. Through this card index, and through its records of the men who attend medical schools, the Association is able to say positively that the number of medical impostors and poorly qualified physicians does not even approximate 25,000. During the past eight years, not more than 2,500 men, who have been given diplomas by low grade medical schools, have received state licenses.

There are today five medical schools in the United States which are not up to the high standard of the remaining seventy-six. If these schools are forced to raise their requirements or else to discontinue, the public will be assured that no men will be graduated in medicine who are not qualified to appear for licensure. If the state licensing boards will then admit to their examinations only those who are qualified, the public will have assurance that any man who can present the license of the state examining board is a properly qualified physician. The existence of multiple licensing boards in certain states, which permit men not qualified for the regular board to pass certain special boards, is a constant menace. Finally, the public will not be safe from the medical impostor until the police power of the state is ever alert to search out and prosecute the man who is practicing medicine without a license.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Chiropractor Fined.—Judge Coleman fined Dwight L. Evans, a chiropractor of Anniston, $100 and costs, November 30, on a charge of practicing medicine without a license, according to reports.

Personal.—Dr. James R. Bean, director of the Birmingham and Jefferson County health laboratory, has accepted the position of director of the public health laboratories of Savannah, Ga.——Dr. Frank W. Brandon has been appointed superintendent of the Wesley Memorial Hospital, Montgomery.

COLORADO

Hospital News.—The Beth Israel Hospital, Denver, was formally dedicated, December 2. This, the second unit of Jewish charitable work in Denver undertaken by Beth Israel, adjoins the Home for Aged Jewish People, opened a few months ago. Unlike the home, the hospital is nonsectarian. Ludwig H. Guldman gave $50,000 toward the building. Every room in the institution has been endowed as a memorial by various donors. Dr. Haskell Cohen will head the medical staff.

DISTRICT OF COLUMBIA

Clinics Opened.—Under the auspices of the Woman's Welfare Association, a clinic for the control of cancer was opened at the Social Service House, Washington, at 2 p. m., December 4, and at 4 o'clock a clinic for asthma sufferers was inaugurated. Until further notice these clinics will be held at these hours Tuesday afternoons. A mental hygiene clinic was inaugurated, December 6. The cancer clinic has no facilities for the treatment of inoperable cases. It will be a clearing house for those who need treatment.

FLORIDA

University News.—A college of pharmacy has recently been opened at the University of Florida with an enrolment of nearly fifty students. Professor Townes R. Leigh, head of the department of chemistry in the College of Arts and Sciences, is director of the new department. Two courses are offered; a two year course leading to the degree of pharmaceutical chemist and a four year course leading to the degree of B.S. in pharmacy.

Annual Antimosquito Conference.—Delegates representing twenty-seven communities of the state in which there are now programs for the eradication of mosquitoes attended the annual convention of the Florida Anti-Mosquito Association in Barto, December 6. George W. Simons, chief sanitary engineer and secretary of the association, opened the meeting, and Dr. J. Y. Porter, Key West, former state health officer, presided. The Rockefeller Foundation films on mosquito control and hookworm were shown.

Check-Up of Quacks.—As the result of investigations covering more than two years, during which hundreds of available records were checked, members of the state board of medical examiners are preparing to proceed against "diploma mill" physicians operating in Florida. According to reports, the governor demanded the reports of Dr. George A. Munch, Tampa, secretary of the eclectic board, several months ago which were refused him. Dr. Munch has now left town, it is said, for a month.——In 1919, a Birmingham, Ala., lithographing house executed an order for a batch of Florida Eclectic Board of Medical Examiners' licenses. Officers who were serving on that board at that time deny any knowledge of placing such an order. In 1917, Dr. V. K. Jindra, Jacksonville, was convicted of a conspiracy to sell a Florida medical license. He is now in prison.——In 1922 the board apprehended Dr. E. Wadge Page, a "diploma mill" graduate, then practicing in Tampa. He left the city and was recently involved in a will forgery case, according to reports.——The public has been urged to cooperate in showing up quacks and to ask alleged physicians to show their diplomas before accepting treatment from them. The medical society of St. Petersburg has decided to advertise the names of the members of the society, to inform the public where they safely may go for medical attendance.

ILLINOIS

Demonstrations Before Medical Society.—Drs. Ralph W. Nauss and R. C. Cook of the state department of public health recently gave a demonstration of Schick testing and smallpox vaccination before the Hancock County Medical Society at Carthage. Lantern slides were also shown. Dr. Nauss conducted a similar demonstration in Galesburg before the Knox County Medical Society, recently.

Society News.—The North Central Illinois Medical Association celebrated its fiftieth anniversary at Streator, December 4. Dr. Roy Sexton presided. The counties of Bureau, DeKalb, Lee, LaSalle, Livingston, Marshall, Putnam, Whiteside and Woodford are included in the society. Drs. Elven J. Berkheiser, Alfred A. Strauss and Edward H. Ochsner, all of Chicago, and Dr. James W. Pettit, Ottawa, gave addresses.

Measles and Diphtheria at Rock Island.—An epidemic of measles at Rock Island, involving 280 cases since December 1, has been complicated by an outbreak of diphtheria. It is reported that seven deaths have resulted among children from diphtheria preceded in each case by measles. A district health superintendent and two bacteriologists have been assigned to duty in Rock Island by the state department of health. Nineteen cases of diphtheria have been reported from Rock Island for the first fifteen days in December.

Chicago

University Donation.—Mrs. Montgomery Ward has donated $3,000,000 to be used for a medical and dental school on the new McKinlock Campus on Chicago Avenue for Northwestern University Medical School. The gift is a memorial to her husband and will be known as the Montgomery Ward Memorial.

Medical School Not Recognized.—An official statement from the Illinois Department of Registration and Education states that the Chicago Medical School was removed from the accredited list several months ago and has not been reinstated, "nor has any promise been made to any one that any such action is contemplated."

INDIANA

Typhoid Epidemic.—According to reports the recent epidemic of typhoid fever in Fort Wayne was caused by pollution from the Maumee River when a check valve connecting the city water with the Pennsylvania Railroad shops failed to operate and allowed the seepage of river water in the city mains.

Society News.—At the annual meeting of the Fort Wayne Medical Society in Fort Wayne, December 4, Dr. John H. Gilpin was elected president; Dr. Willis W. Carey, vice president; Dr. Donald D. Johnston, secretary, and Dr. Homer E. Glock, treasurer.——Dr. James L. Wilson was elected president of the St. Joseph County Medical Society at the annual meeting in South Bend, December 4. Other officers chosen were: Dr. George J. Geisler, vice president, and Dr. Richard B. Dugdale, secretary-treasurer.

IOWA

Society News.—At a special meeting of the Clinton Medical Society, December 13, the following addresses were read: Dr. Harry Mock, Chicago, "Reconstructive Surgery"; Dr. Edwin Miller, Chicago, "Late Ulnar Nerve Palsy," and Dr. George H. Coleman, Chicago, "Peritoneal Pain Sense."

KENTUCKY

Dr. Pusey to Address Meeting.—Dr. William A. Pusey, Chicago, President-Elect of the American Medical Association, will address the Muldraugh Hill Society in Elizabeth, December 29, at the formal opening of the Brown-Pusey House.

Hospital News.—A new building will be erected for the Evangelical Hospital, Louisville, at a cost of $200,000. Construction work will be started in the spring.——The Cumberland Sanatorium, Somerset, has been discontinued.——A four-story and basement addition will be erected at the Booth Memorial Hospital, Covington. The hospital is owned by the Salvation Army.——Excavation has been completed for the foundation of the new $75,000 hospital to be known as Pennington General Hospital, London.——A new institution to be known as the Kentucky Memorial Hospital, Whitesburgh, will be erected in Whitesburgh in the near future at a cost of approximately $100,000.——A new tuberculosis sanatorium will be built under the auspices of the Kenton County Tuberculosis Association, at Covington. Plans call for four or five buildings to be erected at a cost of $125,000.

MARYLAND

Founders' Day.—Founders' Day at the University of Maryland was celebrated, December 19, by the Alumni Association of the Medical School, with a banquet at the Hotel Rennert. The membership of the association consists now of graduates of the old Baltimore Medical College, the College of Physicians and Surgeons, and the University of Maryland Medical School.

Narcotic Bill Considered.—Dr. John S. Fulton, state commissioner of health, called a meeting, December 10, to consider the advisability of enacting a state narcotic law to harmonize with the federal narcotic act. The meeting was attended by Dr. John S. Fulton, A. L. Sullivan and Robert L. Swain, commissioner and assistant commissioner of the bureau of food and drugs; Dr. T. O. Heatwole, dean of the dental department, University of Maryland; Dr. E. F. Kelly, member of the state board of health; Dr. Charles L. Meyers, president of the Maryland Pharmaceutical Association; Dr. B. R. Rhees, representing the federal government; Dr. William T. Watson; Dr. A. P. Herring, commissioner of mental hygiene of Maryland; George E. Henry, chief inspector of police; Sherlock Swann, former police commissioner, and several wholesale druggists.

MASSACHUSETTS

Joint Medical Meeting.—A joint meeting and dinner of the Essex South and Essex North District Medical societies was held at the Essex Sanatorium, Middleton, December 7. Dr. Edward O. Otis presided. Dr. John B. Hawes, II, Boston, spoke on "Pulmonary Tuberculosis, Diagnosis and Treatment."

Prison for Dr. Robb.—Dr. William M. Robb, Boston, was sentenced to from five to seven years in the state prison, December 11, according to reports. Robb pleaded guilty, it is said, to performing an operation on Mrs. Wolschendorf, whose body was found in the Merrimack River in September.

Research on Infantile Paralysis.—Work to determine the cause of infantile paralysis and to prepare, if possible, a remedy, will be undertaken by the Harvard University Infantile Paralysis Commission, it was announced, December 9. The research work will be conducted at the Harvard Medical School at an annual cost of about $120,000. In 1916 an epidemic of infantile paralysis in Boston left 2,000 cripples in its wake, it is said, and in 1920, 696.

MICHIGAN

Portrait Presented.—The faculty of the Detroit College of Medicine and Surgery presented the board of education of Detroit with a portrait of Dr. Ernest Keys Cullen, who died in July, 1922. Dr. Cullen formerly was professor of gynecology at the medical school, and attending gynecologist at the Receiving and Harper hospitals, and a brother of Prof. Thomas Cullen of Johns Hopkins University.

Prenatal Work in Detroit.—At the prenatal clinic in Detroit 1,599 women were delivered in 1922 without one death from toxemia. The total mortality rate of these women was 3.1 per thousand. In the entire city of Detroit in 1922, 27,277 women were confined with a mortality rate of 6.8 per thousand. The

incidence of stillbirths was 53 per thousand. This is a saving of 28 lives per thousand in babies under 1 month of age, apparently the result of prenatal care.

MINNESOTA

Society News.—At the annual meeting of the St. Louis County Medical Society, recently, Dr. Thomas R. Martin, Duluth, was elected president, and Dr. Fredolph H. Magney, Duluth, secretary-treasurer. A banquet preceded the meeting. ——A special meeting of the Hennepin County Medical Society was called, December 17, in Minneapolis to discuss the relationship of community health agencies to the medical profession and the advisability of giving a health exposition.

University Notes.—At a meeting of the administrative board of the University of Minnesota Medical School, Minneapolis, November 6, the following nominations were approved and recommended: Dr. Harold J. Goss as instructor in ophthalmology and otolaryngology; Dr. Joseph F. Bicek, assistant in obstetrics and gynecology; Dr. Christian A. Fjelstad, assistant in ophthalmology and otolaryngology; Eula B. Butzerin as instructor and director of public health nursing, and Misses Haupt and Fuller as instructors in preventive medicine and public health.

Hospital News.—The new Ashbury Nurses Home, Minneapolis, was dedicated in November. The institution was built at an outlay of more than $300,000. Part of the building will be used for a hospital with a capacity of 120 beds.——The new St. James' Hospital, St. James, was formerly dedicated, October 9.——The Immanuel Hospital Association plans a hospital building for Mankato which will be erected at a cost of $150,000.——A hospital for epileptics is planned for Cambridge to be erected at a cost of $40,000.——The Children's Hospital, Inc., of St. Paul, will be formally opened, Jan. 1, 1924. The hospital, which will occupy temporary quarters on Smith Avenue, is nonsectarian, and will receive children from birth to adolescence. Dr. Walter R. Ramsey will be chief of staff.

MISSOURI

Banquet for Dr. Wilbur.—Dr. Ray Lyman Wilbur, President of the American Medical Association and president of Stanford University, Palo Alto, Calif., was guest of honor at a banquet given by the Kansas City Academy of Medicine at the Hotel Baltimore, October 13.

Hospital News.—The new surgical unit recently added to the group of buildings comprising State Hospital No. 2, St. Joseph, was formally opened, October 3. It has a capacity of forty beds and was erected at an approximate cost of $125,000. Most of the furnishings were donated by patients and attendants.

MONTANA

Yellowstone Valley Medical Association.—At the annual meeting of the association, in Billings, December 1, Dr. Wilson J. Perry was elected president; Dr. James D. Barrett, vice president; Dr. Walter F. Weedman, secretary, and Dr. John H. Graham, treasurer.

NEBRASKA

Social Service Unit Organized.—A medical social service department has been organized at the University of Nebraska College of Medicine, Omaha, with Dr. J. Jay Keegan in charge of the dispensary.

Hospital News.—It is announced that the possession of the Campbell Hospital, Norfolk, will pass to the Lutheran Hospital board of North Nebraska.——The Carothers Hospital, a fifty-four room, four-story building at Broken Bow, is completed.——The Douglas County commissioners have let the contract for the erection of a $50,000 county hospital building at Omaha.

NEW JERSEY

Inoculation of Dogs Against Rabies.—Health Officer Craster of Newark states that fifty-five dogs have gone mad in Newark and Essex County during the year and that rabies is prevalent in that area. This is twice the number reported for other years. December 4, Dr. Craster and Dr. Richard N. Connolly, city bacteriologist and the health department veterinarian appeared before the board of health to urge the compulsory inoculation of all dogs against rabies.

Hospital News.—A series of clinics was recently held in the Jersey City Hospital to which all physicians in the vicinity were invited. It is the intention to make this hospital a teaching center for physicians and the laity. Dr. Haven Emerson recently addressed a meeting there on "Private Responsibility for Health."——A ten day campaign was recently launched to raise $400,000 for St. Elizabeth's Hospital, Elizabeth. More than $450,000 was subscribed.——St. Paul's Deaconess Home and Hospital was dedicated recently at Pompton Lakes. Drs. William S. Colfax, Clarence L. Vreeland and David N. Shippee comprise the medical staff.

NEW YORK

Scarlet Fever Epidemic.—An epidemic of scarlet fever is reported from Oyster Bay and Bayville, L. I. The health officer claims the disease has spread because of failure to regard quarantine regulations.

New York City

New Medical Club.—The Central Medical Club has been organized in New York City with Dr. Arthur I. Blau as secretary. Meetings will be held the first Friday in the month.

Dr. Emmet Bequeaths Estate.—The will of Dr. John Duncan Emmet of New York and Morristown, N. J., leaves $450,000 to be divided between the Little Sisters of the Poor and the Roman Catholic Society for the Propagation of the Faith. A trust fund of $50,000 will also go to these societies at the death of the beneficiary.

Kings County Drive Against Quacks.—In the drive against fake dental and medical practitioners, Dr. Charles A. Gordon, president of the Medical Society of the County of Kings, announced after a meeting of the executive council of the society, that full endorsement of the district attorney's plans was voiced and that it was resolved to cooperate with him in every way.

Hospital to Sell Building.—St. Christopher's Hospital for Babies, whose work was recently transferred to the Brooklyn Hospital, has obtained permission from the supreme court to sell its property to the Brooklyn Home for Blind, Crippled and Defective Children for $100,000. This sum will be used to pay the St. Christopher Hospital debts; any remainder will go to the Brooklyn Hospital.

Class Reunion.—The class of 1898 of the College of Physicians and Surgeons, of which Dr. Charlton Wallace is president, held its twenty-fifth annual dinner at the Hotel Commodore, December 8, with seventy-nine members attending. Dr. T. S. Arbuthnot of Pittsburgh was toastmaster. The speakers included Dr. John J. Collins, Dr. Franklin A. Dorman, Dr. Malcolm Goodridge, Dr. Charles F. Hunt, Dr. Herman Grazer, Dr. Samuel J. Kopetzky, Dr. D. J. Lee and Dr. Herman Schwarz.

Post-Graduate Medical School and Hospital Lectures.—The course of free lectures for the medical profession at the Post-Graduate Medical School and Hospital is being continued on Friday afternoons at 5 o'clock. The following lectures are scheduled: January 4, "The Clinical Use of Basal Metabolism," Dr. Cameron V. Bailey; January 11, "Radium Therapy," Dr. George S. Willis; January 18, "A Plea for a Broader Conception of Dermatology," Dr. Henry H. Whitehouse; January 25, "Reconstruction Surgery (with lantern slides and moving pictures)," Dr. Fred H. Albee.

NORTH CAROLINA

Aged Physician Fined.—It is reported that Dr. Edward H. Jones, 76 year old physician of Raleigh, charged with violating the Harrison Narcotic Law, was released by United States Judge Connor, November 28, on payment of a fine of $400 and cancellation of his permit to prescribe narcotics.

OHIO

Crile Research Fellowship.—The Medical School of Western Reserve University, Cleveland, announces the availability of a "Crile Research Fellowship" for graduates in medicine, or others qualified, who desire to do research work in the medical school. The salary is $1,500 per annum and the candidate is eligible for reappointment at $2,000 the second year. Inquiries should be addressed to the committee through Prof. Carl J. Wiggers.

Memorial to Dr. Dudley P. Allen.—Mrs. F. F. Prentiss has donated the funds for a new medical library—a memorial to Dr. Dudley P. Allen who died in 1915—which will be erected on a site given by Western Reserve University at Euclid Avenue and Adelbert Road. Dr. Allen was for many years professor of surgery at Western Reserve University School

of Medicine, and his library was bequeathed to the Cleveland Medical Library Association. The new library will have no official connection with the university and will be free from any control other than by its own organization.

Public Health Notes.—With the cooperation of the local health department and the Cincinnati Academy of Medicine, the U. S. Public Health Service has undertaken a goiter survey in Cincinnati. Similar surveys have been completed in Cleveland and Akron.——Tuberculosis clinics, the fifty-fifth and fifty-sixth in the eradication program of the state department of health, were held at Jackson and Wellston, November 13 and 14.

Resolutions Regarding E. R. A.—At the recent meeting of the state medical board the following resolutions were introduced:

WHEREAS, Numerous complaints are being received concerning the use of the Abrams' treatment in the diagnosis and treatment of disease, and,

WHEREAS, The investigations of scientific men in the medical and allied professions agree that the diagnosis and treatment of disease by the so-called Abrams' method or electronic medicine is wholly unscientific and without value, therefore, be it

Resolved, That the Ohio State Medical Board is of the opinion that its employment in diagnosis and treatment of disease should be suppressed; and be it further

Resolved, That the secretary of the state medical board is directed to cite all practitioners who continue to employ this method in the diagnosis and treatment of disease to show cause why their certificates to practice in the state of Ohio should not be revoked.

The resolutions will be before the board at its meeting, Jan. 8, 1924.

Personal.—Dr. Leon McCollum, Bettsville, who has retired from practice has been elected mayor of that city.——Drs. Roswell F. Machamer and Edward H. Porter of Tiffin, were elected secretary and treasurer, respectively, of the Seneca County Medical Society at the annual meeting. Dr. Norris W. Gillette, Toledo, spoke on "Goiter, Cures and Preventives."——Dr. Warren C. Breidenbach, Dayton, and Dr. Jackson A. Frank, Columbus, were elected president and secretary, respectively, of the Association of Ohio Tuberculosis Specialists at the recent annual meeting in Dayton. ——Dr. Silas A. McCullough has resigned as commissioner of health of Columbiana County and will reside in Pomeroy. Dr. Thomas T. Church, Salem, will succeed him.——Col. Louis T. Hess, for the last four years superintendent of the Ancon Hospital, Panama, has been detailed surgeon at Fort Hayes, Columbus.——Dr. Arthur J. Willey, Marion, has been elected president of the Marion County Medical Society.

OREGON

Society Election.—At a meeting of the Willamette Valley Medical Association in Albany, December 8, the following officers were elected: Dr. Emil W. Howard, Corvallis, president; Dr. Norman E. Irvine, Lebanon, vice president; Dr. William T. Johnson, Corvallis, secretary-treasurer.

PENNSYLVANIA

Personal.—Dr. Francis M. B. Schramm, Johnstown, was elected a member of the school board of that city, November 6.——Dr. A. Jerome Hermann, coroner of Snyder County, succeeded to the office of sheriff upon the death of the former sheriff.

Clinic for Crippled Children.—The Kiwanis Club's clinic for crippled children, held in Johnstown, November 16, was attended by 200 patients, from five counties. Drs. Charles E. Hannan, Bennet A. Braude, Edward Pardoe and Joseph J. Meyer were in attendance.

Philadelphia

Course in Insulin.—A third course of instruction in the use of insulin was started at the University of Pennsylvania, December 17. On Mondays, Tuesdays, Thursdays and Fridays there are lectures and clinics from 2 to 4, and from 4 to 5 laboratory work.

American Sanatorium Association.—The nineteenth annual midwinter meeting of this association was held at the Home for Consumptives, Chestnut Hill, December 14 and 15. The delegates visited and inspected Phipps Institute the first day, and other institutions in this vicinity, which specialize in the treatment of tuberculosis, the second day.

Personal.—Dr. Lydia Allen De Vilbiss-Bradford, professor of medical health administration at the Women's Medical College of Pennsylvania, delivered an address at a luncheon tendered by the business and professional women's club of Philadelphia, December 15. Dr. Martha Tracy, dean of the Women's Medical College, presided.——Dr. Orlando H. Petty has been appointed professor of diseases of metabolism at the University of Pennsylvania Graduate Medical School. Dr. Petty won the Congressional Medal of Honor while serving with the Fifth Marines at Bois de Belleau in 1918. He is a graduate of Jefferson Medical College and formerly was director of laboratories at the Germantown Hospital and physician in charge of the department of metabolism of the Philadelphia General Hospital.——Dr. W. Cole Davis has been appointed medical director of the Philadelphia Hospital for Mental Diseases at Byberry, to succeed Dr. Everett S. Barr, who resigned.——Dr. Georges Portmann, professor of otology, rhinology and laryngology at the University of Bordeaux, France, was the guest of honor of the section on otology and laryngology of the College of Physicians, December 19, where he gave an address on "Operative Technic."

TENNESSEE

Prison for Dr. McDonald.—Dr. William C. McDonald, Soddy, was found guilty of violating the Harrison Narcotic Law, in the federal court, Chattanooga, November 22, according to reports, and sentenced to two years in the Atlanta penitentiary. A plea for continuance was denied.

Larger Health Fund Endorsed.—The Nashville Academy of Medicine endorsed, November 27, the plan launched by the chamber of commerce to provide a substantial increase in funds for state health work. Tennessee's appropriation for public health is only three cents per capita, the lowest of any Southern state, it was reported.

WISCONSIN

A Warning.—Residents of Milwaukee have been warned by the city health commissioner to beware of book agents selling a library of health, who state that the books are endorsed by the health department. Some of the books sell for as much as $25.

"Health Institute" Closed.—Dr. Nathaniel C. Rogers, formerly of Rockford, Ill., has been arrested in Milwaukee, according to reports, on charges of conspiracy to defraud and obtain money under false pretenses. Dr. Rogers is said to have operated the Milwaukee Health Institute in association with Drs. Wallace A. Reinhardt and M. C. Wolf. Through the efforts of Health Commissioner Ruhland the institute was closed, November 22. Reinhardt was in Florida when the warrant for his arrest was issued and Wolf is said to have left the state.

WYOMING

Northwestern Wyoming Medical Association.—At the annual meeting of the association at Basin, December 6, the following officers were elected for the ensuing year: president, Dr. F. A. Mills, Powell; vice president, Dr. Stanley L. Myre, Greybull, and secretary-treasurer, Dr. Evald Olson, Lovell.

CANAL ZONE

Free Glasses for Children.—The Rotary Club of Panama City has inaugurated a campaign for providing suitable glasses free of charge for children whose parents are unable to pay for them. A physician member of the club, and an optical manufacturer of the city, will make free examinations and the glasses will be furnished at cost to the club.

Research Station on Barro Colorado Island.—The natural park on Barro Colorado Island in Gatun Lake recently set aside by the Governor of the Panama Canal for research work on the flora and fauna has been made use of by eminent scientists. Prof. Warder C. Allee, Ph.D., associate professor of zoology at the University of Chicago, will go there in January under a grant from the National Academy of Sciences and Dr. Thomas Barbour, Ph.D., zoologist of the Museum of Comparative Zoology at Harvard University, Boston, will go to the Isthmus to direct the construction of a number of screened buildings for the island under the auspices of the National Research Council. Dr. Richard P. Strong, dean of the School of Tropical Medicine of Harvard University; Dr. William Morton Wheeler, Ph.D., Harvard University; Professors Hitchcock, Maxon and Cook of the U. S. Department of Agriculture and the U. S. National Museum, and Mr. R. C. Shannon of the U. S. Bureau of Entomology have all recently conducted studies on the island. Prof. Frank E. Lutz, Ph.D., associate curator of the American Museum of Natural History is now there studying stingless bees.

GENERAL

The Honorary President of Gorgas Institute.—President Coolidge has accepted the honorary presidency of the Gorgas Memorial Institute of Tropical and Preventive Medicine for which the cornerstone was recently laid at Panama City. The drive to collect the $5,000,000 needed for this work will start Jan. 1, 1924.

Southern Surgical Election.—At the recent meeting of the Southern Surgical Association, at White Sulphur Springs, W. Va., the following officers were elected: president, Dr. Le Grand Guerry, Columbia, S. C.; vice presidents, Drs. James M. Mason, Birmingham, Ala., and John T. Moore, Houston, Texas; secretary, Dr. Hubert A. Royster, Raleigh, N. C., and treasurer, Dr. Urban Maes, New Orleans. The next meeting will be held at Charleston, S. C., Dec. 9-10-11, 1924.

Unified Reports of Industrial Accidents.—A meeting was held in Washington, D. C., December 3, between the federal commissioner of labor statistics and representatives of labor and industrial accident commissions from twelve states to make plans for unified reports of industrial accidents. Secretary Davis addressed the conference. It was the impression of those in attendance that accidents in industry are showing a tendency to increase. In order to arrive at a national view of the facts, it was said to be necessary to unify accident reporting methods.

National Health Series.—In order to make available to the general public at moderate prices authoritative books on all phases of human health, the National Health Council has arranged with the Funk & Wagnalls Company for the publication of the National Health Series. It will contain twenty books of about 18,000 words each written by the leading health authorities of the country. The series of twenty will be $6, or 30 cents each. They will be issued in sets of five, the first set appearing about the end of this month (THE JOURNAL, November 3, p. 1532).

Proposed Amendment to Food Law.—An amendment to the federal Food and Drugs Act, to require printing on the labels of all packages or containers of foods, the name of the manufacturer, canner or packer, is proposed in a bill introduced in the House of Representatives by Congressman Albert Johnson of Washington. The proposed legislation applies only to containers of articles of food and does not apply to drugs. There are many food products, according to Congressman Johnson, sold to the public in containers which do not show the name of the manufacturer or packer, nor his address. The proposed legislation would require such information to be plainly marked on the outside of the package.

Women Admitted to Soldiers' Homes.—As mentioned before in THE JOURNAL the Secretary of War has authorized that a separate building be set aside at the National Home for Disabled Volunteer Soldiers, Danville, Ill., for the care of ex-service women who are entitled to admission to the home and in need of general hospital treatment, and that separate facilities be set aside at the Northwestern Branch National Home for Disabled Volunteer Soldiers, Milwaukee, for such ex-service women as are in need of treatment for tuberculosis. The board has visited the homes at Danville and Milwaukee where buildings have been tentatively selected for the housing of the women. This includes women of the Army Nurse corps, the Navy Nurse Corps, yeomanettes and marionettes.

National Immigration Conference.—An immigration conference was held at the Hotel Astor, New York, December 14-15 (the first of its kind ever held in the United States) under the auspices of the National Industrial Conference Board. Representatives of business organizations, departments of the government, public and social service organizations and delegates of several foreign governments attended the sessions. The meetings were open to the public. Some questions discussed were:

"Shall the per centum act which expires by limitation on June 30, 1924, be retained by extending the period of its operation?"

"Shall it be superseded by new legislation, and if so, by what kind?"

"Shall an investigatory commission be appointed by the President under congressional resolution to investigate and report?"

"Shall the act be retained with amendments in respect to percentage restriction?"

Bill to Prevent Oil Pollution.—A bill "To Improve the Navigability of the Waters of the United States by Preventing Oil Pollution Thereof" has been introduced in the House of Representatives by Congressman Isaac Bacharach of Atlantic City, N. J. The bill is similar in its nature to legislation considered at the last session of Congress, and makes it a penal offense to discharge oil or refuse of any kind into the coastal navigable waters of the United States. The pollution of waters along the Atlantic Coast has been a menace to health, recreation, bathing and fishing. The Bureau of Mines made an exhaustive report on this subject, which will, no doubt, be of aid in bringing about favorable action by Congress on this legislation. A bill of similar character, House Bill No. 612, has been introduced by Congressman Walter Lineberger of Long Beach, Calif.

One Year of Common Colds.—In a group of about 6,700 clerical employees at the home office of the Metropolitan Life Insurance Company there were 2,824 cases of "colds" which involved disability for work during the year ending July 28, 1923. These affections occurred therefore at a rate of 420.7 per thousand employees for the year. The average days of disability for this illness per person on the payroll was 0.9, and the average days per case were 2.2. In all there were 6,233 days lost for the year for these conditions which included coryza, acute bronchitis and tracheitis. There appeared to be two periods of maximum incidence for these infections: the first, following the advent of cool weather in the early fall; the second, when the coldest weather of winter prevails the following January or February. These data indicate that there are distinct relationships between the respiratory infections and changes in the weather. For example, a drop of 10 degrees in the weekly mean temperature carries with it an increase of eighteen common colds per week in this group of 6,700 people. On the other hand mean relative humidity and total precipitation showed only slight influence on the incidence of colds.

Mortality from Tuberculosis, 1922.—The Department of Commerce announces that compilations made by the Bureau of the Census show that 90,452 deaths were due to tuberculosis in the registration area of the United States in 1922, with a death rate of 97 per hundred thousand population. This is a drop of 2.4 since 1921, in which year the rate was 99.4. Although twelve states show increases in rates for 1922, in twenty-two states there are decreases. Adjusted rates based on the standard million population have been calculated. The highest adjusted rate from tuberculosis for 1922 is 172.6 per hundred thousand population for Colorado; the lowest, 36.1 for Nebraska. The high rate for Colorado should not be ascribed to unhealthfulness of climate, but to the fact that the climate attracts those afflicted with tuberculosis. For certain states adjusted rates have been calculated separately for the white and colored populations. In this group, Tennessee has the highest adjusted rates for both white and colored (respectively, 121.8 and 299.8 per hundred thousand population). The lowest adjusted rate from tuberculosis for white population is 54.5 for Mississippi and this state and Florida each shows the lowest rate for colored population (171.5 per hundred thousand population).

Senate Investigation of "Diploma Mills."—The Committee on Education and Labor of the United States Senate is authorized, by Senate Resolution No. 61, introduced by Senator R. S. Copeland of New York, to investigate alleged medical "Diploma Mills," following the revelations in Connecticut and elsewhere. The resolution provides:

That the Committee on Education and Labor be, and hereby is, authorized to inquire into and ascertain the following facts:

(a) If the United States mails have been used by self-styled medical institutions and organizations known popularly as "diploma mills" for purposes of fraud in connection with the sale of degrees or diplomas in preparation for medical practice.

(b) If the public health has been injured by the activity of such self-styled medical institutions and "diploma mills."

(c) If graduates of any such low-standard institutions are employed by the United States Public Health Service or any other branch of the Government.

(d) If the standing of American medical institutions and of our medical profession generally has been injured in other countries by the action of such self-styled medical institutions and "diploma mills."

(e) If graduates from any such self-styled medical institutions and "diploma mills" are now offering themselves as practitioners of medicine in the District of Columbia.

(f) If all of the laws and requirements as to registration are being observed by practitioners of medicine in the District of Columbia.

(g) If any institutions giving degrees in medicine in the District of Columbia are issuing diplomas or degrees to persons without sufficient knowledge and training as legitimately to entitle them to such diplomas or degrees.

Mortality from Cancer, 1922.—The Department of Commerce announces that compilations made by the Bureau of the Census show that 80,938 deaths were due to cancer in the death registration area in 1922, which comprised about 85.3 per cent. of the total population of the United States. If the rest of the United States had as many deaths from cancer in proportion to the population the total number of deaths from this cause in the entire United States was 95,000 for 1922, against a corresponding estimate of 93,000 for 1921. The

death rate from cancer in the registration area in 1922 was 86.8 per hundred thousand population as against 86 in 1921. Only five states show lower rates for 1922 than for 1921. In comparing the death rate from cancer in one state with that in another, the bureau uses "adjusted" rates for age and sex. The highest adjusted cancer rate for 1922 is 106.9 per hundred thousand population for Rhode Island; the lowest, 53.1 for Tennessee. For a few states adjusted rates have been calculated separately for the white and colored populations. In this group of states the highest adjusted rate for the white population is 92.5 per hundred thousand for Maryland and the highest for the colored population is 81.7 also for Maryland. The lowest adjusted rate for white population is 52.8 for Tennessee and the lowest rate for the colored population is 40.8 for Florida.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Joseph's Mercy Hospital, Webster City, Iowa, $500,000, by the will of John McCartey of Williams, Pa.

United Israel-Zion Hospital, New York, $65,000, the proceeds of a bazaar.

Paducah, Texas, for the erection of a hospital, $60,000, by the will of Mr. Richards.

Lenox Hill Hospital, New York, $50,000, in memory of his parents, by Rudolph J. Shafer.

Brooklyn Home for Children, the Brooklyn Eye and Ear Hospital, the Brooklyn Orphan Asylum, each $50,000, by the will of Charles Elwell Perkins; the Brooklyn Hospital and the Brooklyn Home for Aged Men will share a bequest of $250,000 on the death of the testator's widow.

Exeter (N. H.) Cottage Hospital, $30,000 in shares of the Great Northern Iron Ore Properties, by Edward Tuck of Paris.

Sturgis, Mich., for the erection of a memorial hospital, $25,000 for construction and $25,000 for an endowment fund, by the will of William C. Grobbisher.

Mount Sinai Hospital, Philadelphia, $20,000, in memory of her husband by Mrs. Isaac Wassermann.

St. Giles Home for Cripples, $7,500; the Home for Consumptives, Brooklyn, $5,000, and St. Christopher's Hospital for Babies, $2,000.

Episcopal Hospital, Philadelphia, $5,000; the Methodist Hospital and the University Hospital, Philadelphia, each $2,500, by the will of Charles C. Kerchline.

Portsmouth (N. H.) Cottage Hospital, $5,000, by the will of Carrie A. Remick.

Germantown Dispensary, Philadelphia, for the endowment of a free bed, $3,000, by the will of Agnes H. Ulmer.

Society for the Relief of Ruptured and Crippled, New York, the Hebrew Orphan Asylum, the Home for Aged and Infirm Hebrews, the New York Institute for the Blind, the Lebanon Hospital, the New York Nose, Throat and Lung Hospital, the Northern Dispensary, and the New York Orthopedic Dispensary and Hospital, each $2,000; Lenox Hill Hospital, the St. Francis Hospital, Wyckoff Heights Hospital, Brooklyn, and the New York Eye and Ear Infirmary and Flower Hospital, each $1,000, by the will of Louis T. Lehmeyer.

The Brooklyn Hospital, the German Hospital, the Brooklyn Home for Consumptives and the White Plains Hospital, White Plains, N. Y., each $1,000, by the will of Adeline M. Munnich.

Pawtucket-Central Falls, R. I., Chapter of the American Red Cross, $1,000, from Col. Lyman B. Goff, and $500 each, from Charles O. Read and John Johnson of Pawtucket.

Mount Sinai Hospital, Philadelphia, $500, by the will of Joseph J. Cohen.

Chester County Hospital, West Chester, Pa., stocks and investments for the erection of a memorial tablet to her parents, by the will of Isabella R. Patterson.

Children's Hospital, and the Mary J. Drexel Home, Philadelphia, two free beds by Mr. and Mrs. Runtt and Dr. Theodore Spressler.

LATIN AMERICA

Tribute to Professor Couto.—The *Brazil-Medico* of Rio de Janeiro devotes eighteen pages to the account of the three-day tribute paid by the profession and the public to Dr. Miguel Couto on the twenty-fifth anniversary of his entering the medical faculty. Two bronze tablets were unveiled, and receptions were held in the medical faculty, in the Academia Nacional de Medicina, of which he has been president for the last nine years, and in the Sociedade de Medicina e Cirurgia, with addresses. He has been regular professor of clinical medicine since 1911, having had the chair of propedeutic medicine before this, and has long been corresponding member of scientific societies in other countries.

FOREIGN

Prize for Cancer Research.—The Christie Hospital, London, is offering a prize of £300 ($1,500) for cancer research. Candidates must submit evidence of original research work bearing on cancer completed or projected. The competition is open to all nationalities.

London School of Tropical Medicine.—The annual dinner was held November 21, at the Hotel Victoria, with Sir Ian Hamilton Benn in the chair. Sir James Allen, high commissioner of New Zealand, Surgeon Vice Admiral J. Chambers, Sir William Leishman, Sir Walter Fletcher and Lord Devonport were guests of the school. It was stated that the school would retain its name within the Rockefeller Institute in honor of the memory of Sir Patrick Manson.

Venereal Disease Law in Bohemia.—A telegram from Prague to the *Medizinische Klinik* states that the new law which went into effect, October 18, provides for notification, compulsory examination of suspects of either sex and compulsory treatment for those found with venereal disease. Reglementation is abolished. Physicians are required to keep records of those treated for venereal disease, with provisions for maintaining professional secrecy. If treatment is refused or neglected, the health officer may have the individual taken to the hospital. The law forbids treatment by correspondence; exposure of other parties to the disease or infection of other parties is subject to penalty. This includes transmission of syphilis by diseased wetnurses or infants. The public health authorities are to provide expert examination and treatment, including the necessary drugs for the poor. Personal prophylaxis is not mentioned in the law.

Women's Medical Service in India.—The thirty-eighth annual report on the work of the National Association for Supplying Medical Aid to Women in India, issued by the Countess of Dufferin's Fund has been published. It includes a report of the Women's Medical Service for India which at the beginning of 1922 consisted of thirty-eight medical officers with four temporary officers. The number of women medical students was 436, and there were 400 women practitioners of medicine in India and as many as 145 hospitals whose staffs are composed of women. This indicates the advances made in providing medical aid by women since 1885, when the service was formed. Large areas, however, are still unprovided with medical relief and the council of the Dufferin Fund summarizes the chief needs of the country as regards medical aid by women as follows:

1. A far greater number of hospitals whose staffs are made up of women.
2. A far larger supply of Indian women doctors both for hospital and private work.
3. More opportunity for graduate work to keep up the standard of professional knowledge.
4. Training schools for nurses and midwives in connection with all women's hospitals.
5. More funds for the working of the hospitals.
6. A constant supply of women doctors and midwives to take up preventive work in connection with maternity and child welfare in all parts of the country.

Government Services

U. S. Public Health Service Report

The fifty-second annual report of the U. S. Public Health Service for the fiscal year ended June 30, covering its one hundred and twenty-fifth year of its existence, has just been published. To meet the growing demands of American shipping and to reduce serious fire hazards due to antiquated buildings, new marine hospitals are urgently needed, it is said. Twenty-five hospitals are now operated by the U. S. Public Health Service, including the National Leprosarium at Carville, La. A new feature of the present report is a section dealing with the use of the radio for the dissemination of health information which was instituted, July 13, 1921.

Report of Surgeon-General U. S. Army for 1923

In his report for the year ending June 30, 1923, the Surgeon-General of the Army calls attention to increase in personnel as the important need of the department, and for which new legislation is required. The present allowance of personnel is barely sufficient to provide satisfactory medical attendance and hospitalization for the sick and injured. In order to train the reserve personnel satisfactorily, the Surgeon-General believes three medical regiments will be necessary, one in the northern, southern and western parts of the country. The present personnel includes 983 medical, 158 dental, 126 veterinary and fifty medical administrative officials.

Analyzing the diseases affecting the Army during the last year, the Surgeon-General calls special attention to influenza, which has continued to increase, and measles, which has decreased markedly. The rates for venereal diseases, malaria and other infectious diseases have also decreased. There was only one case of typhoid in the Army, and only five cases of smallpox, and there were no deaths from either. On the whole, the report follows the lines laid down in previous years.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 30, 1923.

Dean Roger's Impressions of South America

Prof. H. Roger, dean of the medical faculty of the University of Paris, gives, in the *Presse médicale*, an account of his visit to South America. It is the general, but erroneous, belief in Europe that South Americans are not familiar with European science. Those who entertain such a belief would be greatly surprised if they could visit the splendid scientific institutions and modern hospitals that are rising throughout South America. No doubt South Americans can still learn from us, but we can learn much from them, and Roger assures Europeans that a visit to South America will well repay them. Whereas our scientists often devote time and energy to abstract research, and take pleasure in formulating hypotheses and theories, the investigators of South America are, for the most part, intensely practical, with little interest in doctrinal discussions. They go straight toward their goal, and make practical and successful applications of science. As an illustration, Roger refers to the work of Oswaldo Cruz, who in three years eradicated yellow fever from Brazil. He praises highly the remarkable organization of charity work and, more particularly, the first-aid or emergency services. In all large cities there are one or more first-aid stations where physicians, surgeons, midwives and pharmacists may be found on duty, day and night. At Santiago de Chile, Roger was afforded a demonstration which convinced him that the system functioned almost perfectly. One evening, about 11 o'clock, as he got up from a banquet that had been given in his honor, by way of demonstration the central first-aid station was called by telephone and asked to send an ambulance for a sick man. Six minutes after the call was turned in, the emergency ambulance was in front of the door. Roger took a seat in the ambulance and, two minutes later, arrived at the first-aid station, where physician, surgeon and assistants were waiting, ready to treat or to perform an emergency operation on the patient who, fortunately, proved to be in the best of health. Referring to the warm welcome accorded in South America to foreign scientists, especially to representatives of the medical profession, Roger points out that social relations with foreigners are facilitated by the fact that almost everybody speaks French fluently.

A Life Annuity for Madame Curie

The minister of public instruction has presented to the chamber of deputies a bill which, if accepted, will confer on Madame Curie, as an evidence of national appreciation, a life annuity of 40,000 francs. It is planned to bestow the gift, Dec. 28, 1923, which will be the twenty-fifth anniversary of the announcement to the Academy of Sciences of the discovery of radium. The way having been prepared by the remarkable work of Henri Becquerel, the collaboration of M. and Mme. Pierre Curie produced at first polonium and then radium.

In the minister's statement setting forth his reasons for recommending the passage of the bill, he referred in these terms to the extremely new character of the discovery of radium:

> Our whole conception of matter, chemistry and the science of the universe has been placed on an entirely new basis; in addition, the emanations emitted in the transmutation of the atoms of radium have been found to exert a powerful action on living matter. Already, effective means have been discovered by which certain evils from which humanity suffers, such as cancer, can be combated. The strange and profoundly new character of these discoveries, the practical developments associated with them, and the hopes that they awaken for the future, create for France the moral obligation of shewing its gratitude to those who made possible this glorious event. Unfortunately, Pierre Curie passed away prematurely. With admirable faith, firm resolve and scientific self-denial, Madame Curie is continuing the work so auspiciously begun. The hour has come for France to show her grateful appreciation.

Indulgence Shown by the Courts Toward "Healers"

In previous letters, I have referred to the indulgent attitude often assumed by our courts toward all kinds of "healers," whose methods they refuse to recognize as constituting illegal practice of medicine. The appellate court of Paris has recently furnished another case in point. A "magnetician," whose circulars indicated that he regarded himself as a disciple of Pascal, Descartes, Mesmer, Curie, Pasteur and Jeanne d'Arc, was sentenced, a few months ago, by the court of correction to one year of imprisonment and a fine of 200 francs, for the illegal practice of medicine. The defendant appealed, and the appellate court acquitted him, holding that the accusation of illegal practice of medicine did not hold as the treatment consisted merely in placing a magnet in a basin of water, pronouncing a few magic words accompanied by cabalistic signs, applying compresses wrung out of this water, and then sending the patients away with the assurance that they would be cured.

Cancer at Bordeaux

M. Albert Lachapèle, an intern of the hospitals of Bordeaux, has published recently in the *Gazette hebdomadaire des sciences médicales de Bordeaux* an interesting contribution to the statistics of cancer in large cities. Table 1 shows the mortality from cancer in Bordeaux during the period from 1914 to 1922.

TABLE 1.—*Cancer Statistics for Bordeaux, 1914-1922*

	Years								
	1914	1915	1916	1917	1918	1919	1920	1921	1922
Total number of deaths	5,961	5,606	6,194	6,102	8,543	6,317	5,717	5,424	5,186
Deaths from cancer	319	301	388	346	310	364	359	351	379
Percentage	5.3	5.2	6.2	5.6	3.7	5.7	6.2	6.4	7.3

The population of Bordeaux has increased from 261,678 (1914) to 267,409 (1921). With the exception of 1918-1919, under the effects of the influenza epidemic, the number of deaths remained about the same in spite of the increase in the population. The total mortality decreased slightly, while the mortality from cancer increased considerably. The number of women dying of cancer is greater than that of men, as may be seen from Table 2.

TABLE 2.—*Sex Distribution of Deaths from Cancer*

	Years								
	1914	1915	1916	1917	1918	1919	1920	1921	1922
Women	206	199	250	201	184	216	217	217	210
Men	113	102	138	145	126	148	142	134	169
Total	319	301	388	346	310	364	359	351	379

The digestive tract and appendages are most frequently affected (49 per cent. in 1922). In decreasing order of frequency come the stomach, the liver, the rectum, the small intestine and the colon, the tongue, the esophagus and the pancreas. Next in order of frequency are cancer of the uterus (16 per cent. in 1922) and cancer of the breast (5 per cent. in 1922).

Deaths

The death of Dr. Henri Bouttier, physician to the hospitals of Paris, has been announced. He graduated in 1918 and became a collaborator of Prof. Pierre Marie. During the war, he published a series of articles on traumatism of the brain and meninges; and he has also reported numerous

researches on epilepsy: azotemia and the urea index during epileptic seizures; the epileptic state, and the circulatory and vasomotor disturbances of epilepsy. In collaboration with Pierre Marie, he published recently a series of researches on cerebral sensory disturbances: the great variety of sensory dissociations, and their association with sensory affections of thalamic origin. Bouttier also, in collaboration with Pierre Marie and Crouzon, introduced the treatment of epilepsy with potassium borotartrate.

Dr. Paul Oudin, well known as an electrotherapeutist and roentgenologist, has died at the age of 72. He was born at Epinal, in 1851, and at an early date began to devote himself to electrotherapeutics. He invented a device for increasing the tension of an electric current, which bears the name "Oudin resonator" and which has recently been employed in connection with wireless telegraphy. In 1895, Oudin made the first roentgenograms made in France, which were taken immediately after Roentgen's discovery was announced.

Dr. Paul Michaux, who was honorary surgeon to the hospitals of Paris, has died at the age of 69. After retiring from active duty, he devoted a good share of his time and energy to the Féderation gymnastique et sportive des patronages de France, which he had founded and of which he was the president.

Physical Reeducation in the Army

From the point of view of social justice, it does not seem right to put on the young men of robust appearance the whole weight of military duty and to neglect those who need to be developed; this often cannot be accomplished owing to lack of proper counsel and assistance. The annual examination of those who, on account of certain defects, were placed on the deferred list, has proved that the majority of these men had not overcome their defects after being returned to their home environment. Up to 1901, the military authorities had not given special attention to the weakly or those whose condition was below par. Such men remained in their units where the officers gave them some special consideration, but often really did not know just what treatment was best for them. In 1901, it was decided to try the plan of grouping them together in a special platoon, one for each regiment. But the creation of these platoons of underfit men had not been generally applied. The war of 1914-1918, with the enormous losses that it entailed, caused the plan to be revived. In 1917, whole companies of the underfit were organized, with a view to bring as many men as possible up to standard fitness after a short time spent in a special training camp. It proved possible to bring, within a year, 100,000 such underfit men up to the required standard of efficiency. These special training centers have continued to function since the war closed. In 1919, they were reserved for a time for the war wounded and convalescents, but since 1920 they have again been used for the special training of young men with defective constitutions. They are now combined with centers of physical instruction, and a regional organization has been perfected. Their inspection, from time to time, by the exemption and classifying boards makes it possible to place the men in the special groups indicated by their degree of physical development. Many men (especially at the beginning of their training) are given individual attention and receive special prescriptions as to exercise, diet, etc. A great deal of attention is given to breathing exercises, for the vast number have never learned to breathe properly. Every month, a reexamination and a reclassification allows the medical director of the center either to return a man to his unit as completely fit or to place him in a higher class among those whose retraining is not yet completed. This monthly reclassification is based on: (1) a clinical examination, together with any special examinations (roentgenologic, laryngologic, etc.) that may be needed; (2) a physical examination comprising various tests in walking, jumping, running, climbing, lifting and throwing, and (3) a physiologic examination (heart, lungs), bringing out the reaction of the subjects to various exercises.

With the results of these careful examinations as a basis, the physician can make the new classification of the subjects, with a full knowledge of the existing conditions. He can at any time intervene and make any changes he may desire in the method of training; while the instructors only need to follow the prescriptions in order to regulate the progress of the training. The military instruction, in a general way, runs parallel with the physical reeducation, the military exercises taken up increasing gradually in duration and intensity, as the men become more fit through training.

Furthermore, these centers of reeducation make it possible to eliminate, after a trial, a considerable number of young men who present affections incompatible with military service. These subjects classed as unfit for service, either at a medical examination or during the first few months of training, are returned to their unit and are later reexamined by the exemption board.

LONDON

(From Our Regular Correspondent)

Nov. 26, 1923.

Casualties in London Streets

A return just issued states that 158 persons were killed in street accidents which were recorded by the Metropolitan Police during July, August and September. Of this total, 140 deaths resulted from accidents in connection with mechanically propelled vehicles, and the remaining eighteen from accidents in which horse-drawn and other nonmechanically propelled vehicles were concerned. Nine of the deaths in the latter class were due to accidents to pedal bicycles. Mechanically propelled trade and commercial vehicles were responsible for forty-five deaths, private motorcars for thirty-seven, motor omnibuses for thirty-one, motorcycles for seventeen, streetcars for eight, and cabs for two. In the same period the total number of accidents to persons or property, including those in which deaths occurred, was 19,263, of which 13,798 occurred to mechanically propelled vehicles and 5,465 to horse-drawn or nonmechanically propelled vehicles.

Breakdown of the Unit System at the London Hospital

What is known as the "unit system" was introduced into this country in 1920 with the idea of improving the teaching of medicine and advancing research. The principle was that already followed in other countries: to provide certain teachers with a sufficient salary to make them independent of private practice and able to devote all or the greater part of their time to the objects mentioned above. Previously, teachers lived on private practice, and the only benefit they derived from teaching was the enhanced reputation. The new plan seems so far to have been successful, though it must be remembered that it forms only a small part of hospital teaching. Side by side with the "unit" teaching the old system continues, and it is in the latter that the most eminent men in the profession take part, for the emoluments of the unit would be no attraction to them. But suddenly the failure of the system on the surgical side has been announced from the London Hospital. Mr. Souttar, director of the surgical unit, states in a letter to the *British Medical Journal* that he finds that withdrawal from private practice has a narrowing effect on his mental outlook. It confines him to the wards and laboratories of the hospital, and the difficulties and requirements of work in the outside world are forgotten. The more complete the organization of his work, the more perfect the assistance he receives, the more will he tend to rely on

the mass of information placed before him and the less on his observation and interrogation of the patient. The diagnosis of fractures tends to become a matter of the roentgen rays, and a gastric case appeals to him only as source of test meals and opacities. Dealing with patients of low mental power, he is apt to feel that their interrogation will only mislead him. Yet he is teaching men who, when they go into practice, will have to cope with the very difficulties which his own surroundings tend to obliterate. Again, it is no small part of the business of the medical student to learn those from whom he may best obtain assistance when he is out in the world. It is an impossible handicap to forbid his teacher to consult with his old pupils. Even in research, Mr. Souttar finds disadvantage. His time is absorbed in a routine of responsibilities, and the very material for clinical study he finds eluding him. The clinical researcher depends for his material not on the casual entries of the hospital, but on cases sent by outside physicians who know his special interests. But private practice seems too complex a thing for a physician to send his private patients to one consultant and his hospital cases to another. Mr. Souttar found his cases for admission dwindling and his beds empty. A return to private work immediately brought back the old conditions of a good supply of hospital cases, and the special cases so essential to teaching began to appear. Mr. Souttar draws attention to the difference between the director of the unit system in this country and the professor of surgery on the European continent, from which the system has been borrowed. The professor is the absolute head of the whole clinic, including its laboratories. Not only does he engage in private practice but he is the acknowledged leader of his profession, and all the most important and exceptional surgery of the district passes through his hands. Through his assistants he can organize surgical demonstrations on a grand scale, and the teaching can be placed on a systematic basis which we have never achieved. But in most cases the teaching of the continent is limited to the lecture theater. The personal touch of ward teaching, which is such a feature of Britain and so valuable, is lost, and the product is more likely to be a brilliant student than a useful physician. In Mr. Souttar's opinion, our teaching is a cause for pride rather than dissatisfaction, and no great revolution in its methods is required. He recommends the scheme adopted at the London Hospital, where each of the five surgical "firms" has a paid assistant. Each firm consists of a senior and junior. The assistant is a young surgeon who is paid $2,000 a year. His duties are to assist in the organization of teaching and research, and only in exceptional circumstances is he called on to undertake the ordinary routine of hospital work.

In the correspondence evoked by this letter, Mr. Sampson Handley states that, after full consideration, his hospital (the Middlesex) declined to adopt the professorial unit system, fearing the very disadvantages found by Mr. Souttar. They decided that all the advantages of the system could be obtained by a similar method to that now adopted at the London Hospital—the appointment of whole-time registrars at a salary of $1,500 a year, tenable for three years. These appointments appeal to men who have completed resident ones and are working for higher qualifications. The result has been increased efficiency. Another correspondent criticizes Mr. Souttar, expressing surprise at his complaint that he requires special cases for teaching and research. This correspondent (an anonymous London teacher) would have thought that the function of the surgical unit was to investigate common, every-day cases, of which our ignorance is profound. For instance, if rheumatoid arthritis had been chosen for research, the investigator would have been overwhelmed with cases. The same situation would hold for the biochemical relationships of cancer.

VIENNA

(From Our Regular Correspondent)

Nov. 24, 1923.

Scarcity of Cadavers for the Teaching of Anatomy

The anatomic institute of our university is face to face with a serious condition that may even bring about the closing of this important part of the medical school. During the last few years, the number of cadavers delivered to the institute has been constantly declining. While formerly each group of six students engaged in dissection could be supplied with from three to five cadavers each term, last year only two bodies were available; even these for the most part had been preserved for months by means of phenol (carbolic acid) injected into the veins. In "better times" a stock of cadavers was always supplied to the cellars; but in the last few months this stock has been nearly exhausted, and it has been necessary to limit the number of new students below a certain "numerous clausus." According to the data given by the board of the institute, in 1921-1922, there were delivered for dissecting purposes the bodies of seventy-eight adults and seventy-nine children; in 1922-1923, the numbers were twenty-two and nine, the latter already partly dissected. This term, only one body has been received. The reason for this unfortunate situation is to be found only partly in the diminished number of patients dying in hospitals or in the action of religious societies that undertake to bury the poor. The chief fault lies in the organization for supply; this has been handed over by officials to incompetent agents with a view to saving the cost of transporting the cadavers to the institute and from there to the burial grounds. Naturally, this has caused widespread indignation in medical circles. But so powerful is the organization of officialdom in this republic that all efforts of the medical faculty, as well as public protests, have proved useless. Now that the facts are widely known, it is probable that the new national assembly will pass a law providing for the adequate supply of teaching material by requiring the delivery of a certain percentage of the bodies dealt with in each hospital.

Public Health Budget for 1923-1924

In the budget for 1923-1924, the following sums have been provided for expenditure on public health: treatment, control and after-care of war invalids, including pensions and hospital accommodation, $5,500,000; control of the health of juveniles (school physicians, inspection of board schools, upkeep of baths, playgrounds), $300,000; government institutes for examination of foodstuffs and for the manufacture of serums and vaccines, $200,000; special institutes for physical therapy (radioactive waters), $500,000; state hospitals, control of epidemics and the fight against alcohol and tuberculosis (chiefly lectures and public instruction), $1,500,000; midwifery service in the country, police medical service and sanitation of rural districts, $700,000. All these figures must be considered from the standpoint of the fact that our country has only 6,500,000 inhabitants.

Alcohol as a Cause of Accidents

In an interesting paper on "Alcoholic Etiology of Injuries," recently discussed in the report of the Austrian ministry of health, Dr. Schumacher, who has examined the records for the last three years of the first accident department of the General Hospital in Vienna, deals with accidents caused directly or indirectly by indulgence in alcoholic beverages. The figures are not absolutely correct, as the department is closed every September for four weeks, and its work is transferred to another clinic for that time; some alcohol cases also are taken to other hospitals. But still the statistical material thus obtained is ample to allow certain definite conclusions. It appears that the total of "alcohol accidents" is

smaller than might be expected. The monthly average for 1920 was 2.3 out of 388 accident cases; for the year 1921, it was 3 out of 425; and for 1922, it rose to 10 out of 403 each month. Comparing this with the probable total of cases of drunkenness in a large capital city of 2,000,000 inhabitants, one is struck with the small proportion of intoxicated persons who are injured. The accidents happen mostly in the course of fights, from being run over by vehicles, by falls, or by attempts at suicide. The largest number of cases brought to the accident department is uniformly encountered in the months of February and March; doubtless, this is due to the carnival, which, in this country, is celebrated in these months. As regards days, Saturday night and Sunday are the most fruitful; the weekly salary is soon spent in drinking; these two days alone have as many cases as all other days together. Accidents caused indirectly by alcohol are most often due to fights, ninety-one out of a total of 197; younger persons are mostly concerned, more than 60 per cent. being below 30, and only 15 per cent. over 40. The latter group are more easily the victims of falls, and the injuries are mostly on the occiput, forehead or face. The injuries caused by vehicles concern chiefly older persons; only 12 per cent. of patients below 30 were brought in for this reason, against 40 per cent. of persons over 50. These injuries are often serious; fractures of the extremities, of the cranium, and comotio cerebri are rather frequent. Of late, serious injuries have increased in frequency, no doubt, as a result of the increase of traffic as regards both intensity and speed. A peculiar feature of the cases brought in with injuries caused by suicidal attempts is that out of the thirteen cases recorded no less than eleven were inflicted with a knife or dagger. Stabs in the abdomen or heart region were the rule, the use of firearms being apparently abhorred by the drunkard. It must, however, be stated that the instances in which the attempt at suicide was successful are not considered in this report. Here again, the majority of the cases happened on Sunday or Monday. The overwhelming majority of all patients suffering from alcohol accidents were men, only 3 per cent. being women; none were under 18 years of age, two were above 76, while more than 30 per cent. were younger than 30. Ninety-five per cent. were manual workers. Dr. Schumacher, in summing up his observations, points out a peculiar fact. The intoxicated person in falling is less prone to sustain severe injury, unless he is knocked down by great force. The sober person, in falling, tries to regain his equilibrium and may overstrain different muscle groups, with the result that joints or bones may give way. The drunken person falls like a sack, without resistance on the part of his muscles; he simply cracks the skin over the head or some long bone which happens to strike against the ground. To illustrate the extent of alcoholic excess in this city, it may be added that, in the first half of 1923, the police arrested 8,753 persons for being drunk and disorderly on the streets; of these, 79 per cent. were men. Saturdays accounted for 2,163 cases, Sundays for 1,444. Of each 20,000 inhabitants of the city, forty-nine were charged with being drunk. No wonder that the antialcohol movement has received such attention lately from the police and the eugenists.

Census Sex Distribution and Birth Rate

The preliminary result of the Austrian census, taken March 7, 1923, has been published, and the following figures are of interest. The entire population amounts to 6,526,661, of whom 3,382,568 are women, and only 3,144,093 men. The women have now reached the same number as in 1910, the men show as yet a deficit of more than 141,000. The excess of women over men is now 76 per thousand, which is 53 more than in 1910, but already less than in 1920, when the last preliminary census was taken; it then stood at 83 per thousand. In the mountainous regions of Tyrol, Salzburg and upper Austria, both sexes have passed the figures of the year 1910 as regards the number of births, while in Vienna and the industrial centers neither sex has yet reached the 1910 mark. In three rural districts only the women are more numerous than in 1910. In the cities and towns—except Vienna—the general increase of the population that obtained until 1914 has again started, but admittedly the female component is larger than the male. Only in two purely industrial factory towns—Steyr and St. Polten—does the number of men exceed that of women. The ratio of women to each thousand men in the different districts is: Vienna, 1,169; Tyrol, 1,037; upper Austria, 1,054; lower Austria, 1,039; Styria, 1,026; Graz, 1,139; Innsbruck, 1,093; St. Polten, 973; Steyr, 952; Baden, 1,268; Linz, 1,086. The birth rate of the last three years are given. In 1919 it was 17.96 per cent.; in 1920, 22.40; in 1921, 25.10; the death rate was 20.33, 18.97 and 17.06, respectively. A marked decrease in infant mortality and in the age group up to 5 years is noted.

Dental Surgeons and Dental Mechanics in Austria

Altogether, there are 470 qualified physicians in Vienna who practice dentistry exclusively out of 3,267 practitioners, while 788 licensed mechanics compete with them in caring for the teeth of the public. The whole republic, with 6,689 physicians, has just 700 dental surgeons, or a little more than 10 per cent., while the number of mechanics is 1,112. The latter will gradually decrease in time because under the new dental act no new licenses will be issued; the existing mechanics are allowed to do a certain amount of surgical work that is directly connected with mechanical dentistry.

BERLIN

(From Our Regular Correspondent)

Nov. 24, 1923.

Researches of Nobel Prize Winners on Physiology of Muscle

In the researches of Meyerhof of Kiel and Hill of London, between whom the Nobel prize for medicine was divided, the old problem of muscular activity, which Helmholtz and du Bois-Raymond sought to solve, has again come to the front. When a muscle contracts, it not only performs mechanical work but also produces heat. Both are derived from the usual sources of energy, that is, by combustion; in muscle, sugar is burned with production of carbon dioxid, and the energy thus eliminated is transformed according to the general law of the conservation of energy, which holds good for animal organisms as for machinery. The question arises as to the relationship between the chemical, mechanical and thermic processes. Possibly muscle works like a steam engine, in which heat is formed first by oxidation and then a portion of the energy is converted into motion. Against this old view, however, many objections have been raised. It is possible that muscle does not need to produce heat and then convert it into motion. For purposes of experimentation, physiologists have from time immemorial used dissected frog muscle, because it continues to live for many hours after removal from the body and offers simpler conditions for research. The frog's gastrocnemius weighs about a gram, is 3 cm. in length, and a single contraction extends over a tenth of a second. Nevertheless, Hill was able, with an exceedingly delicate apparatus, to measure with mathematical precision the quantity of heat that the muscle develops at one contraction. Hill was surprised to discover that only part of the heat (scarcely half) is produced during the contraction, and that the remainder is not formed until the muscle has again relaxed, and, furthermore, that the time required extends over many seconds. Similarly, the Hungarian investigator Verzar found that the oxygen consumption of the muscle takes place, for the most part, after the

contraction. These two stages of muscular activity can be distinctly separated from each other if the muscle is allowed to work without oxygen, being hung up in an atmosphere of nitrogen as did Weiszäcker, and, by the addition of hydrocyanic acid, is deprived of the capacity of utilizing oxygen. The muscle contracts even without oxygen, anaerobically, as it were; its efficiency—the relation of the work performed to the quantity of heat produced—is then even greater (from 70 to 100 per cent. instead of from 30 to 40 per cent.), which would be impossible for a heat-generating machine. The muscle, however, becomes quickly fatigued, and of the heat that would ordinarily be generated only the first half is actually produced, the remainder being suppressed. There is then plainly a first "initial" stage and a second "oxidative" stage of heat generation.

Meyerhof attacked the problem more from the chemical side. He studied more particularly the lactic acid, which, as recent investigations had shown, is formed normally in resting muscle, but still more rapidly in working muscle. Lactic acid, as the name indicates (Latin *lacteus,* milky), is produced at the souring of milk by bacterial decomposition of milk sugar, and Meyerhof had previously discovered a peculiar connection between fermentation and respiration. From yeast, substances may be extracted which, in animal cells, facilitate respiration and sugar combustion; and, vice versa, an extract of muscle furthers yeast fermentation. So, as the first stage of respiration in the muscle, a fermentation-like process is observed, which splits the muscle sugar (glycogen) into lactic acid. Again, by withdrawing the oxygen this stage can be separated, which causes the acid to accumulate in the muscle, and this stage continues as long as the contraction. The significance of the process is intelligible; for, as other investigations had shown, it is the acid that produces the shortening of the muscle. Following the contraction there is a considerable period in which the lactic acid completely disappears under the influence of the oxygen intake. Is the lactic acid simply burned, with the production of water and carbon dioxid, as is the most natural assumption? Meyerhof, from careful determination of the sugar content, the amount of lactic acid, the oxygen consumption and the formation of carbon dioxid during the various stages of muscle activity, found that only one third of the lactic acid is burned and eliminated; two thirds are changed back, in the economy of the organism, into the original substance (muscle sugar), under the influence of the heat produced by the combustion; the decomposition of one portion is utilized for the resynthesis of the other portion. Between formation and elimination of the acid there is an intermediary stage. In oxygen-free surroundings when no acid is eliminated, the muscle still becomes fatigued, and the acid is transferred from its place of origin to parts distant from the contracted portions, where it remains inactive; only when it accumulates in considerable amounts does it cause fatigue and a flaccid and nonexitable state of the muscle.

Thus, chemical research has shown, corresponding to the initial and oxidative stages established by Hill, that there is a first phase during contraction, when lactic acid is formed, which takes place just as well when oxygen is excluded; and a second phase in which lactic acid is eliminated, burned or metamorphosed, which is possible only in the presence of oxygen. As muscle sugar is a prerequisite for the genesis of lactic acid, so the second stage is a prerequisite and preparation for the first. In the second stage, the trigger is set, as it were, and is released by the contraction of the muscle; in other words, the accumulator is charged and its energy is set free by the contraction. If we regard the muscle as a machine, then we must consider it as essentially a chemical and not a heat-producing machine. Only when we combine the findings of Meyerhof and Hill, which confirm and supplement one another, do we get a complete picture of what takes place.

Nutrition Among German Children

Recent reports of school physicians and physicians in infant welfare stations, in large cities and especially in Berlin state that there has been marked impairment in nutrition among children during the last few weeks as the result of the sudden and unprecedented increase in the cost of food, together with the dearth of indispensable articles of diet. There is great distress also among the sick of all age groups; most needed remedies are out of the reach of most patients, and even institutions that are fairly well supplied with funds furnished by foreign countries are frequently unable to secure the simplest medicines. Supplementary feeding in the form of a breakfast containing 500 calories is to be provided, at government expense, for 500,000 children, for the most part in the schools.

Color Perception and Acuity of Vision in Sailors

According to a recent report (No. 44) of the federal public health bureau, in the year covered by the reports, 8,854 sailors were examined for acuity of vision. Of this number, 8,568, or 96.77 per cent., possessed satisfactory vision, while the vision of the remaining 286 was inadequate. Examination for color perception was carried out on 8,779 sailors. Of this number, 8,599, or 97.95 per cent., were not color-blind; nineteen, or 0.22 per cent., were unable to perceive green; seventy-one, or 0.81 per cent., could not perceive red, and ninety, or 1.02 per cent., had little or no color perception.

Poisoning by Oil of Chenopodium and by Mercuric Chlorid Tablets

According to a report of the federal public health bureau (No. 44), several deaths among children have been occasioned recently by adult doses of oil of chenopodium. This vermifuge is rightly regarded as effective, but it is dangerous unless proper care is taken. Oil of chenopodium should never be administered except on a physician's prescription and under medical supervision, lest children, through misunderstanding, be given doses intended for adults. It is planned to add this remedy to the list of drugs that may not be dispensed without a physician's prescription.

There have been several cases in which mercuric chlorid tablets have been introduced into the vagina to prevent conception by persons ignorant of their highly poisonous nature. Several women have succumbed to acute mercurial poisoning. Attention is called to these cases, and a note of warning is sounded.

Marriages

Roy M. Cox, San Luis Obispo, Calif., to Miss Olive Burnett Hall of Neligh, Neb., November 21.

Arthur Johnson Greenleaf, Mountville, Pa., to Miss Kathryn Seitz of Quarryville, recently.

Ernest Mills Kingsbury to Miss Hannah Jane Nelson, both of Clearwater, Minn., October 8.

Edward Henry Kupke, Kenney, Ill., to Miss Anna Marcue of Lemar, Iowa, November 25.

Henry Wise Lyon to Miss Fannie Darden Gotlin, both of Windsor, N. C., November 17.

John H. Butts to Miss Margaret Isabelle Black, both of Waterloo, Iowa, November 28.

J. Russell Van Sickle, Holly, Mich., to Miss Ruby Oliver of Detroit, November 19.

William H. Scott to Miss Verna Quivey, both of Dallas City, Ill., November 6.

Felix H. Renberg to Miss Hattie Arnstein, both of Chicago, November 27.

Deaths

Harold Nicholas Moyer ✠ Chicago; Rush Medical College, Chicago, 1879; died, December 14, of heart disease. Dr. Moyer was born in Canajoharie, N. Y., in 1858; from 1886 to 1903, he served on the faculty of Rush Medical College as an assistant in diseases of the nervous system, lecturer in physiology and histology, adjunct professor of medicine, assistant to the neurologic clinic and assistant professor of medicine. He was a member of the House of Delegates of the American Medical Association, from 1902 to 1904, and a member of the Reference Committee on Credentials of the House of Delegates in 1904. He was formerly president of the Illinois State Medical Society and the Chicago Medical Society, was a member of the Chicago Neurological Society, the Chicago Pathological and the American Neurological Association. He was at different times on the staff of the Cook County, the Columbus, St. Luke's, and the Mercy hospitals of Chicago, and the Eastern Hospital for the Insane, Kankakee, Ill. Dr. Moyer was widely known as a medicolegal adviser. He was a man of genial character with numerous friends.

Everett **E. Hodgin,** Indianapolis; Physio-Medical College of Indiana, Indianapolis, 1896; Medical College of Indiana, Indianapolis, 1901; member of the Indiana State Medical Association; president of the city board of health; on the staff of the Indianapolis City Hospital; aged 52; died, December 4, of mitral regurgitation, following erysipelas and pneumonia.

Vivian **Pendleton Gaines,** Mobile, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1872; Medical Department of Columbia College, New York, 1873; member of the Medical Association of the State of Alabama; formerly lecturer in obstetrics at the University of Alabama School of Medicine; aged 72; died, November 27, of mitral regurgitation.

William **Edward Bloyer,** Buckland, Ohio; Eclectic Medical Institute, Cincinnati, 1879; member of the Ohio State Medical Association, and president of the American Association of Orificial Surgeons; formerly professor of materia medica at his alma mater; aged 70; died, November 24, of carcinoma of the stomach and diabetes mellitus.

Sylvester **Joseph Byrne,** Brooklyn; Long Island College Hospital, Brooklyn, 1890; for twenty-seven years assistant registrar of records in the Brooklyn Department of Health; chairman of the Committee on Vital Statistics of the American Public Health Association; aged 63; died, December 5.

Lawrence **Pierre Desmond,** Cheyenne, Wyo.; Bellevue Hospital Medical College, New York, 1898; member of the Wyoming State Medical Society; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 50; was found dead, November 25, of heart disease.

David **Cassat Barber** ✠ Los Angeles; Miami Medical College, Cincinnati, 1886; formerly assistant professor of clinical surgery at the University of California Medical School, San Francisco; at one time superintendent of the Los Angeles County Hospital; aged 61; died, December 2.

Paul **Carson,** Boston; Dartmouth Medical School, Hanover, N. H., 1894; served as port physician for fifteen years; formerly chief of the division of child hygiene of the city board of health, and medical inspector of the Boston Health Department; aged 53; died, November 27.

William **George Hawkey,** Belvidere, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; member of the Illinois State Medical Society; county coroner for twelve years; formerly member of the board of health; aged 59; died, December 2, of embolism.

Albert **Theodore Swan,** New York; Bellevue Hospital Medical College, New York, 1879; member of the Medical Society of the State of New York; on the staffs of the Willard Parker and Riverside hospitals; aged 66; died, December 6, of heart disease.

Henry Albert Suitor ✠ South Deerfield, Mass.; Tufts College Medical School, Boston, 1906; president of the Franklin County Medical Society; on the staff of the Farren Memorial Hospital, Montague City; for several years member of the school board; aged 44; died, December 2, of cerebral embolism.

William Hitchcock Tukey, Major, U. S. Army, retired, Machias, Me.; University of Vermont College of Medicine, Burlington, 1891; served in the Spanish-American War and in the Philippine Insurrection; aged 56; died, November 19.

David Maxwell Graham, Duluth, Minn.; Jefferson Medical College of Philadelphia, 1870; Hahnemann Medical College of Philadelphia, 1877; Hahnemann Medical College and Hospital, Chicago, 1883; aged 80; died, November 29, of senility.

Cornelius Joseph McCormick ✠ Waltham, Mass.; Medical School of Harvard University, Boston, 1876; formerly member of the school board; one of the founders of the Waltham Hospital; aged 70; died, December 4, of heart disease.

Page Alexander Gibbons ✠ Morgantown, W. Va.; University of Maryland School of Medicine, Baltimore, 1897; formerly on the staff of the Sheltering Arms Hospital, Hansford; aged 49; died, December 2, of cerebral hemorrhage.

Oscar W. Doyle, Louisville, Ky.; University of Louisville (Ky.) Medical Department, 1901; member of the Kentucky State Medical Association; adjunct professor of therapeutics at his alma mater; aged 44; died, November 29.

Charles Hitchcock, New York; Medical Department of Columbia College, New York, 1872; member of the Medical Society of the State of New York; formerly on the staff of St. Luke's Hospital; aged 75; died, December 5.

Charles Adelbert Ballard, Harlowton, Mont.; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1897; proprietor of the Ballard Hospital; aged 48; died of septicemia, November 26.

H. Everett Russell, Otisville, N. Y.; New York Homeopathic Medical College, New York, 1886; for six years on the staff of the Municipal Sanatorium; aged 60; died, November 22, following an appendectomy.

Elijah Brodie Meadows, Oxford, N. C.; University College of Medicine, Richmond, Va., 1901; member of the Medical Society of the State of North Carolina; aged 48; died, December 2, following a long illness.

Frank Austin Palmer ✠ Morris, Ill.; Northwestern University Medical School, Chicago, 1897; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 50; died, December 2.

Sargent Francis Snow ✠ Syracuse, N. Y.; Medical Department of the University of the City of New York, 1887; member of the American Otological Society; aged 62; died suddenly, December 9.

Vene P. Armstrong, Dallas, Texas; University of Louisville (Ky.) Medical Department, 1877; formerly city health officer; superintendent of the Westmoreland Sanatorium; aged 68; died, November 30.

Bernhard Segal, Philadelphia; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; aged 55; died, November 26, following a long illness.

Newel R. Bradley, Saginaw, Mich.; Saginaw Valley (Mich.) Medical College, 1900; member of the Michigan State Medical Society; aged 65; died suddenly, November 27, of heart disease.

James Cary Stinson, Reagan, Tenn.; Vanderbilt University Medical Department, Nashville, 1882; member of the Tennessee State Medical Association; aged 70; died, November 30.

John M. Lenoir, Paris, Texas; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1891; aged 56; was shot and killed, November 30.

William Lloyd Friedman ✠ Oakland, Calif.; Baltimore (Md.) Medical College, 1897; member of the Pacific Coast Oto-Ophthalmological Society; aged 51; died, December 1.

Ira Wellington Chapman ✠ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1904; formerly professor of physiology at his alma mater; aged 47; died, November 23.

Edmund H. Madden, Absecon, N. J.; Jefferson Medical College of Philadelphia, 1866; member of the Medical Society of New Jersey; aged 81; died, November 27, of senility.

Samuel Jessup White, Jr., Unadilla, N. Y.; Medical Department of the University of the City of New York, 1888; village president; aged 61; died, November 23, of pneumonia.

Jay D. Nusbaum, Fort Wayne, Ind.; Medical College of Indiana, Indianapolis, 1905; aged 40; died, December 2, at St. Vincent's Hospital, Indianapolis, of heart disease.

C. Clayton Koons, Larned, Kan.; Kansas City (Mo.) Medical College, 1901; member of the Kansas Medical Society; aged 51; died in November, of cerebral hemorrhage.

William Henry Boodro, Boston; Medical School of Harvard University, Boston, 1899; also a pharmacist; aged 48; died, November 18, at the Carney Hospital, of pneumonia.

Walter M. Hunter, Petersburg, Ind.; Medical College of Indiana, Indianapolis, 1891; member of the Indiana State Medical Association; aged 72; died, December 1.

George William Kirmse ⊕ Minneapolis; St. Louis (Mo.) University School of Medicine, 1907; aged 40; was drowned, November 25, in Lake Amelia, while hunting.

Joseph Kentling ⊕ Bloomington, Ind.; University of Louisville (Ky.) Medical Department, 1900; aged 46; died, December 4, following an operation for gallstones.

Greenberry B. Brown, Georgetown, Ky.; Medical Department University of Louisville, Ky., 1873; Civil War veteran; aged 80; died, November 29, of senility.

John Jacob Schoofs ⊕ Fond du Lac, Wis.; State University of Iowa College of Medicine, Iowa City, 1893; aged 57; died suddenly, December 3, of heart disease.

Fred Warner Stevens ⊕ La Grange, Ill.; College of Physicians and Surgeons, Chicago, 1906; aged 50; died, December 14, of lethargic (epidemic) encephalitis.

Joseph A. Groves, Selma, Ala.; Medical College of the State of South Carolina, Charleston, 1854; Confederate veteran; aged 93; died, November 26, of senility.

Harry Marion Lucas Sims, Poughkeepsie, N. Y.; Medical Department of Columbia College, New York, 1873; aged 72; died, November 21, of arteriosclerosis.

John Clancy Parish ⊕ Smithfield, Va.; Medical College of Virginia, Richmond, 1914; also a pharmacist; aged 34; died, November 30, following a long illness.

Michael Ambrose Carroll ⊕ Scranton, Pa.; College of Physicians and Surgeons, Baltimore, 1889; aged 57; died, November 30, following a long illness.

Samuel S. Smythe, Denver; Hahnemann Medical College and Hospital, Chicago, 1867; Civil War veteran; aged 84; died, November 16, of pneumonia.

Guy Virgil Baxley, Grovetown, Ga.; University of Georgia Medical Department, Augusta, 1900; aged 48; died, November 13, following a long illness.

Frank Sylvanus Knipe, Brooklyn; Long Island College Hospital, Brooklyn, 1900; aged 47; died, December 3, of pulmonary tuberculosis.

Walter Eugene Bongartz ⊕ Westpoint, Me.; Boston (Mass.) University School of Medicine, 1883; aged 61; died, November 17, of carcinoma.

J. C. Sellers, Spring, Texas; University of Louisville (Ky.) Medical Department, 1889; aged 58; died, November 12, following a long illness.

Joseph Aloysius Gallagher, Pittsburgh; University of Pennsylvania School of Medicine, Philadelphia, 1901; aged 49; died, November 29.

John M. Sease, Little Mountain, S. C.; University of Maryland School of Medicine, Baltimore, 1886; aged 62; died, November 28.

Charles Henry Tripp ⊕ Clinton Corners, N. Y.; Bellevue Hospital Medical College, New York, 1881; aged 67; died, November 21.

Webster Coleman Smith, Franklin Grove, Ill.; Rush Medical College, Chicago, 1885; aged 82; died, December 6, of senility.

Fred Yonkers, Zeeland, Mich.; Saginaw Valley (Mich.) Medical College, 1902; aged 64; died, November 30, of heart disease.

John M. Egan ⊕ Minneapolis; University of Minnesota Medical School, Minneapolis, 1907; aged 40; died, November 30.

William A. Charter, Marion, Ohio; Washington University School of Medicine, Baltimore, 1874; aged 71; died, December 4.

John Bunyan Spratt, Mount Sterling, Ky.; Jefferson College of Philadelphia, 1857; aged 96; died recently, of senility.

Hardin Wilcoxson, Loami, Ill.; American Medical College, St. Louis, 1880; aged 72; died, December 4, of pneumonia.

Andrew Konzelman, St. Louis; Barnes Medical College, St. Louis, 1899; aged 70; died, November 23, of pneumonia.

Alvin Ethelbert Cowan ⊕ Ensley, Ala.; Birmingham (Ala.) Medical College, 1912; aged 43; died, November 27.

Edward Lee Johnson, Cooperstown, N. Y.; Albany (N. Y.) Medical College, 1891; aged 54; died in November.

William B. Kuehne ⊕ Cleveland; Jenner Medical College, Chicago, 1900; aged 64; died in November.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

GLY-SO-IODONATE

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of this report.

W. A. PUCKNER, Secretary.

In July, 1921, Charles E. Huchings requested consideration of Gly-So-Iodonate. He claimed to be a graduate of King's College of Medicine, London, but the registrar of that institution has written that his name does not appear on the college's medical register. The product, said to be a "chemical germicide-antiseptic," was "owned and controlled exclusively by the Wisconsin Medical Laboratory" which is at the present time claimed to be affiliated with the National Medical Research Laboratories, Milwaukee, Wis.

The composition of Gly-So-Iodonate was originally stated to be:

	Per Cent.
"Double distilled water	81
Alcohol	10
Glycerin	2
Solids	7
Percentage of solids as follows:	
Sodium Carbonate	2.50
Sodium Chlorid	1.60
Sodium Sulphate	0.65
Sodium Bicarbonate	0.40
Potassium Carbonate	0.15
Alumina Oxid	0.05
Calcium Sulphate	0.10
Magnesium	0.05
Boracic Acid	0.30
Potassium Iodid	0.30
Iodin	0.40
Corrosive Sublimate	0.50"

The method of preparation was given as follows:

"Composition and chemicals used in the preparation of Gly-so-iodonate; First Part:

Sodium Carbonate	36.00
Sodium Chlorid	23.00
Sodium Sulphate	10.06
Sodium Bicarbonate	6.02
Potassium Carbonate	2.18
Alumina Oxid	1.50
Calcium Sulphate	2.72
Magnesium Sulphate	1.52
Boracic Acid	5.00
Potassium Iodid	5.00
Iodin	7.00

"The method of completing the solution is as follows, Second Part: 3,219 c.c. of double distilled water is brought to a boiling point of 225 degrees (F). After boiling for a period, 20 grains of corrosive sublimate is added—solution is again held at boiling point, then the fused chemicals (part one) is added—boiling is again held for a period, after which the whole is submitted to a special process of distillation. After cooling to a certain degree determined by years of trials, 450 c.c. of 190° alcohol is added—again distilled, and the 115 c.c. of C. P. glycerin is added—final process is another special distillation for bottling."

"The above quantities are used for making one gallon."

The Council considered the information, and the following points were presented to the Wisconsin Medical Laboratory:

I. *Composition Not Correctly Declared.*—Obviously the formula presented was an impossible one: (1) any free iodin added in accordance with the formula would react with the alkali carbonate to yield alkali iodid and alkali iodate, and (2) mercuric chlorid would react with alkali iodids to give an alkali mercuric iodid. Gly-So-Iodonate, moreover, was referred to as a distillate, for in the process of manufacture, as submitted, the solids of the formula were dissolved in water, the solution distilled and the glycerin and alcohol added to the distillate. It was safe to predict that, no matter what the interactions of the ingredients may have been, the salts of sodium, potassium, magnesium, calcium, etc., would not be sufficiently volatile to permit their distillation with the water vapors.

II. *Formula Needlessly Complex and Irrational.*—The finished Gly-So-Iodonate, a "non-poisonous" "distillate," according to the submission of the manufacturer, was a product "presenting and maintaining a dual duty of germicide and healer." It was said not to be deteriorated by "light waves, sun rays, heat and cold" and it was claimed, furthermore,

that "the various chemicals are so arranged to either [sic] take up all tissue fluids and hold them in suspension, against growth, or dry up unessential exudates," "each [chemical] fulfilling a specific action within the exudates and sebums common with most wounds." In the end no evidence was submitted to demonstrate the superiority of the mixture over that of a solution of the well-known potassium mercuric iodid of equivalent concentration.

III. *Label Not Acceptable and Name Not Descriptive.*—The amount of poisonous material, mercury compound (potassium mercuric iodid?) in a given quantity was not declared on the label and the name Gly-So-Iodonate is not descriptive of the potent ingredient of the mixture.

The manufacturing company made a reply to this report, but the reply contained no statement of facts which altered the conflicts of Gly-So-Iodonate with the rules which govern the acceptance of products for inclusion in New and Nonofficial Remedies.

RECENT DEVELOPMENTS

From recent developments, it is evident that an active selling campaign for Gly-So-Iodonate is being directed toward factories and large commercial concerns by the National Medical Research Laboratories. The original Gly-So-Iodonate, with its statement of composition but slightly changed, is now claimed to be the base of three additional products supplied by the same firm—"Iomer-Mensal for nose and throat work, Saline-Merammo for genito-urinary work, and Gly-So-Dental for dentistry and mouth wash."

In reference to the last mentioned products, a notice appears on the present-day label of Gly-So-Iodonate, which reads, "CAUTION-G. S. I. is especially prepared for surgical work and for all infections other than found in Ear, Nose and Throat or Genito-Urinary tract. Our various fluids are not interchangeable."

Specimens of Gly-So-Iodonate and the allied products were recently obtained in the open market, and the statements of composition of these are herewith reprinted from the labels. A glance suffices to show the incomplete and meaningless statements of composition. A comparison of the claimed composition of the products shows them to be complex mixtures varying slightly in the amount of this or that and with new ingredients added at will. The three new products have the potassium salts,

GLY-SO-IODONATE	
Volume	Per Cent.
Distilled Water	79
Alcohol	10
Glycerin	4
Minerals, Alkaloids, etc.	7
Per Cent. of Minerals, Alkaloids, Etc.	
Corrosive Sublimate	0.75
Iodin	0.55
Chlorids	2.10
Vegetable Alkaloids	2.05
Platinum	0.45
Potassium Salts	1.10

stated to be in Gly-So-Iodonate, omitted; all show an increase over Gly-So-Iodonate in chlorid content and iodin (a claimed iodin increase of 2.55 per cent. in the case of Saline-Merammo). A few new ingredients are declared, such as small amounts of sodium and ammonia in Saline-Merammo, sodium and magnesium in Iomer-Mensal, and sulphids in Gly-So-Dental. All four products have one property in common: On opening a bottle, there is a distinct odor of iodoform, evidently due to the interaction of iodin and alcohol in alkaline solution.

Gly-So-Iodonate, the so-called base of the other preparations as now marketed, is claimed to differ from that formerly sold in that (1) in the new product there is an alleged increase of both mercuric chlorid and iodin; (2) unnamed chlorids and unnamed potassium salts are now claimed instead of the defined sodium and potassium salts, alumina oxid, etc.; (3) platinum is claimed as a new ingredient of the product, and (4) contrary to known principles of compatibility, vegetable alkaloids are claimed as new ingredients.

No statement is made as to why platinum, which has found no use in medicine, is desirable, or as to why it is claimed to be present in a quantity of nearly one half of one per cent. Obviously, there could hardly be present the alleged 0.45 per cent. either of platinum or of a salt of platinum, for this amount in one quart alone would be worth at the present market price over fifteen dollars, a sum between three and four times as great as that asked for Gly-So-Iodonate itself.

In view of the improbability of these claims, the Chemical Laboratory of the American Medical Association made the following determinations on Gly-So-Iodonate:

	Per Cent. By Weight
Vegetable alkaloids	0.001
Mercury	0.026
Mercury (0.026%) Calculated as Mercuric Chlorid (Corrosive Sublimate)	0.036
Platinum ..... less than	0.01

The above analysis confirmed the suspicion that there were no alkaloids present; mercury was present in less than one-twentieth of the claimed amount, and platinum was present in less than one forty-fifth of the asserted amount!

IOMER-MENSAL	
Volume	Per Cent.
Distilled Water	74.50
Alcohol	11.50
Glycerin	4.50
Minerals, Alkaloids, etc.	9.50
Per Cent. of Minerals, Alkaloids, etc.	
Corrosive Sublimate	0.30
Iodin	1.05
Vegetable Alkaloids	2.15
Platinum	0.10
Chlorids	3.70
Sodium	1.25
Magnesium	0.75

SALINE-MERAMMO	
Volume	Per Cent.
Distilled Water	73
Alcohol	11
Glycerin	4
Minerals, Alkaloids, etc.	12
Per Cent. of Minerals, Alkaloids, etc.	
Corrosive Sublimate	0.81
Iodin	3.10
Sodium	0.74
Ammonia	0.30
Vegetable Alkaloids	2.15
Chlorids	4.50
Platinum	0.40

GLY-SO-DENTAL	
Volume	Per Cent.
Distilled Water	76
Alcohol	9.50
Glycerin	5.50
Minerals, Alkaloids, etc.	9
Per Cent. of Minerals, Alkaloids, etc.	
Corrosive Sublimate	0.60
Iodin	0.75
Chlorids	4.80
Vegetable Alkaloids	1.50
Platinum	0.25
Sulphids	1.10

The original objection that the name of the product is not suggestive of the most potent ingredient still holds. The analysis made in the laboratory showed that there was no free iodin, but combined iodin, in the form of iodid and iodate. A commonly used method for the extemporaneous preparation of potassium mercuric iodid is to mix mercuric chlorid with potassium iodid. In view of this, and in consideration both of the statements made on the new and the old labels, and the findings of the association's laboratory, it is evident that the mercury contained in Gly-So-Iodonate is present in form of a complex salt such as potassium mercuric iodid and not as "corrosive sublimate" as declared. No complex compound of mercury is mentioned in the statement of composition; instead the asserted presence of free iodin is stressed, and the name itself is suggestive of iodin rather than mercury.

In the advertising that is being sent to commercial concerns, the National Medical Research Laboratories make many claims for the superiority of Gly-So-Iodonate and its allied products:

> G-S-I is, we feel, the BACTERICIDE the medical world has searched for since the days of LISTER.
>
> Indicated in every case which formerly called for Iodine, Phenol, Silver Nitrate, or Caustics.
>
> G-S-I is a bactericide of enormous potency. Its effect upon tissues is salubrious. Its application is simple, clean, non-irritating and not involved in the tedious, expensive and complicated technique of other antiseptics. Its recent discovery makes its far reaching possibilities as yet unknown, and much of its amazing promise is still in the hands of the pioneers in its use.

It is claimed that many Milwaukee firms are users of the product. There are also reprinted letters of recommendation from general managers, safety engineers, and even from a nurse and a physician of these commercial plants. These recommendations are of the unscientific and uncritical type common to such testimonials.

To summarize; Gly-So-Iodonate is not the scientific masterpiece it is claimed to be; the statement of composition is obviously incorrect; the product is essentially semi-secret; its actions are virtually those of a solution of potassium mercuric iodid to which has been added a chemical hodge-podge; it is marketed under a nondescriptive and misleading name. In view of these facts, the Council has authorized publication of this report declaring Gly-So-Iodonate inadmissible to New and Nonofficial Remedies.

Correspondence

JOURNAL EDITORIALS—A PRACTICAL SUGGESTION

To the Editor:—It may possibly interest you to learn of an unsuspected but extremely valuable use to which certain editorials of The Journal have been put. For the last seven years I have cut out, mounted, filed and catalogued editorials on current physiologic subjects. From time to time during the course in physiology at Western Reserve University Medical School, sets of editorials which bear on topics under consideration are placed in the student laboratory. Students are encouraged to read these whenever a few unoccupied minutes become available. Their value as an adjunct to teaching is at least fourfold:

1. Each editorial furnishes a short, complete discussion on a single or relatively few points, susceptible of being read, digested and assimilated in five minutes or less. This is a great aid in fixing ideas.

2. They present physiologic subjects clearly and from interesting medical standpoints which are often quite different from textbook discussion.

3. They present digests or reviews of recent work which does not find its way into textbooks until several years later.

4. They convert the five to fifteen minute intervals that so often occur while waiting for lectures or during laboratory work from intervals of idleness to intervals of useful study and thereby impress the fact so difficult to learn, viz., that in a busy life a great deal of study may be accomplished by making appropriate use of idle moments.

The eagerness with which new sets of editorials are awaited by students, and the avidity with which they are made use of, make me feel that they are an adjunct in physiologic teaching that I should not wish to sacrifice.

I am wondering whether a similar system of systematic filing, indexing and *reading* Journal editorials relating to various phases of the medical sciences might not prove a practical method by which the busy practitioner, no matter where located, would be able not only to review the medical sciences from time to time, but to keep abreast of the time as well.

Carl J. Wiggers, M.D., Cleveland.
Professor of Physiology, Western Reserve University School of Medicine

"CATARACT EXTRACTIONS PERFORMED BY PROF. JOSEF MELLER OF VIENNA 1919-1921"

To the Editor:—I have just received the presession book of the Section on Ophthalmology containing the paper on cataract read by Dr. Hans Barkan at the recent annual session of the American Medical Association [The Journal, this issue, p. 2086]. I have not personally had the pleasure of meeting either Dr. Barkan or Dr. Meller.

The facts are not Dr. Barkan's but are those of Dr. Meller, and they seem to me to deserve some comment. The paper deals with 249 extractions; of these, 174 are treated in a separate group as uncomplicated. The remainder, amounting to no less than 30 per cent., are treated as complicated. Why reject to a category on which no reputation is to be based as many as 30 per cent.? It is more than three times as many as we encounter in practice, unless we are scouring up the cases rejected by every one else. This was not the case at Vienna. In the next place, I wish to draw attention to the table showing the details of this 30 per cent. It is clear that the diagnosis of complicated was made some time after operation, as the facts could not be diagnosed before operation in many instances, and would be very difficult to diagnose when the patient was leaving the hospital in some cases.

War and postwar conditions do not explain the reason why so huge a percentage as 30 has been relegated to this category.

Any one can make out nice statistics if he waits till the patients are leaving the hospital. He can then reject 30 per cent. of the cases, putting them into the category of complicated, implying that they were complicated before operation. Why include black cataract as complicated?

The writer refers to a paper by Dr. Hardy, which I have not seen, and to another by Dr. Fisher of Chicago on operations I did at two clinics. I know the facts of Dr. Fisher's papers. I wonder that Dr. Barkan has not more sense of the ridiculous, as Dr. Fisher's is (though not directly) a reply to Dr. Hardy and to other such papers; and, if I may say so, it wipes the sink with them.

Dr. Barkan makes allowances for my psychology, etc., as regards operating in the United States in unfamiliar surroundings. I do not require such consideration, as I have no "nerves" and have equal confidence in myself in any surroundings. But I do appeal for fair play, and I feel that, taken all round, the American people will give it to me or any one else.

Dr. Barkan and some others expect me to see the patients just before operation; to operate; all records and after-treatment to be done by whom I do not know, the patients being not even seen by me after operation. Then he puts forward such statistics as any one thinks fit. On the other side, he puts facts given by Dr. Meller, who has made out all the facts himself. Have such conditions ever been asked of any man in any department of surgery? Yet they are asked of me, and I am asked to treat them as fair. We do not say much, but we all know there is much more in medicine than science and art. There is, for instance, the demon rivalry.

Dr. Barkan allows Meller to throw out 30 per cent. as complicated. He does not allow me to throw out any, though if Dr. Meller had been operating in the cases reported by Dr. Hardy on the Vienna showing he would have thrown out 50 per cent. as complicated and 20 per cent. as inoperable.

Statistics made out as in the paper under consideration and as Dr. Barkan wants lead nowhere and convince no experienced surgeon. To convince any one, the work has to be seen first hand and seen throughout, good and bad, as used to be the case at my Indian clinic. One might as well think to stop the tide with a broom as to stem the progress of intracapsular extraction by such methods as Dr. Barkan and Dr. Hardy adopt.

Henry Smith, M.D., C.I.E., Sidcup, Kent, England.
Lieutenant Colonel, Indian Medical Service.

"PROBLEMS OF LIFE IN THE TROPICS"

To the Editor:—I have been much interested in the editorials on the effects of high temperatures and humidities. I have been in accord with all but the last, on "Problems of Life in the Tropics" (The Journal, December 1, p. 1880). This speaks of the "needs today" but apparently overlooks recent investigations in the field, which were made in our own country.

I note that a work published in 1905 stating that the rise in body temperature is virtually independent of the dry bulb temperature has been accepted by the writer in view of the advancement of our knowledge both in England and in America since that date.

The work of the U. S. Public Health Service and U. S. Bureau of Mines, cooperating with the American Society of Heating and Ventilating Engineers, I believe, sufficiently

demonstrates that the dry bulb temperature is as important as the wet bulb, and the study includes "more fundamental investigations," which the writer informs us are needed.

W. J. McCONNELL, M.D., Pittsburgh.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

"DOES HEAT INJURE VACCINES?"

To the Editor:—Please put me right on the following claim made by the G. H. Sherman Company:

"Does heat injure vaccines? The recommendation of most Biologic Manufacturers is that their products be kept on ice. If room temperatures are deleterious to these vaccines, what happens to them when they are heat sterilized? Sherman's vaccines are sterilized without heat."

It has been my impression that vaccines lose their therapeutic value from standing at ordinary temperature for long periods of time, rather than from exposure to high temperature for a period of time sufficient to kill the organism.

H. J. DENMAN, M.D., Bessemer, Ala.

ANSWER.—The idea that vaccines lose in potency on standing at room temperature is generally accepted. Heating to kill the bacteria may affect the antigenic value, but so far as known not any more than other methods of sterilization, e. g., chemicals. In all probability, deterioration in antigenic value proceeds at about the same rate in vaccines standing at room temperature, whatever the method of killing the bacteria may have been. The advertisement obviously intends to convey the idea that the killing of bacteria in vaccines by heat injures the vaccine, and that the method used by Sherman does not. This statement, or inference, that the Sherman method is superior to heat sterilization is unwarranted; so far as we know, it is not based on scientific evidence. The astounding deduction that heat sterilization, at a definite temperature for a given time—usually not more than thirty minutes or thereabouts—must be highly injurious, because vaccines may lose in potency on standing for weeks and months at variable room temperatures, is simply a pseudo-scientific statement intended presumably to bolster up the merits of the advertised wares in the eyes of more or less thoughtless purchasers.

TINNITUS AURIUM

To the Editor:—For many years, I have been troubled with head noise, and I am desirous of knowing whether there is a remedy for this malady. Do you have anything to suggest?

M.D., District of Columbia.

ANSWER.—Head noises, more often called tinnitus aurium, have a great variety of causes. It is necessary to know something about the etiology in order to decide the therapy. Tinnitus may be due to a disturbance of the conduction apparatus of the ears, such as impacted cerumen in the external auditory canal with or without pressure against the drum membrane; to serous or purulent secretion in the middle ear, adhesions, etc., in the tympanic cavity, or to changes about the stapedial footplate at the oval window. It is often caused by abnormalities in the internal carotid artery or the internal jugular vein, both of which run through the temporal bone in close proximity to the middle ear. Various conditions in the eustachian tube itself produce tinnitus. Sometimes, in cardiac lesions, a murmur is transmitted through the blood vessels and perceived in the ear. At times, in cases of marked anemia, there is a bruit like the one often heard at the base of the heart. Various conditions of the inner ear or labyrinth or auditory nerve account for tinnitus, and there is often involvement due to the use of drugs, such as quinin or the salicylates. Sometimes it is suppuration in the inner ear or actual degeneration of the auditory nerve which produces the noises.

When the diagnosis once is made, attention is directed to the removal of the causative factors, if that is possible. Cases of obstruction of the external auditory canal due to cerumen are relieved by syringing with warm water or with sodium bicarbonate solution. The application of a 1 or 2 per cent. silver nitrate solution to the pharyngeal orifice of the eustachian tube is often efficacious. If there is obstruction to the tube or serous or mucoid secretion in the middle ear, inflation with the Politzer bag or by means of catheters, or the passing of bougies through the eustachian tube, often give benefit. Pneumomassage, applied either by way of the eustachian tube or by way of the external auditory meatus, helps in some cases. When there is an anatomic abnormality of the artery or vein, no direct therapy can be applied except in cases of very distressing and long continued tinnitus, when compression of the vessel, especially the artery, will diminish the noises. In cases of anemic murmurs, treatment of the general condition with arsenic, etc., is indicated. In a labyrinthine or auditory nerve involvement caused by the ingestion of certain drugs, these must be stopped and then free elimination promoted by the drinking of plenty of water, in connection with pilocarpin, etc., to induce sweating. When the tinnitus is accompanied by a degeneration of the auditory nerve itself, very little can be done for the relief of the patient by a direct method, such as manipulation. However, both in this condition, as well as in the tinnitus sometimes due to middle ear disturbances, large doses of bromid often diminish the tinnitus, at least temporarily. In those cases of so-called neurotic sounds due to a hypersensitive condition of the auditory nerve, the use of bromids will also sometimes be of avail. Tinnitus is often a most intractable and distressing symptom, and one which may drive the patient almost to desperation; therefore, all possible means for diagnosis should be employed and the logical therapy instituted in the hope of effecting some relief.

TREATMENT OF CARBUNCLES

To the Editor:—What is considered the best and latest treatment for carbuncles, more especially, for those confined to the face?

A. S. WARDER, JR., M.D., Grafton, W. Va.

ANSWER.—The treatment for carbuncles should vary somewhat, depending on the location of the infection. On the back of the neck, where the subcutaneous fat lies in columns perpendicular to the surface and surrounded by rather firm connective tissue septums, the infection tends to spread along these columns. The tension becomes so great that the circulation is interfered with and, as a result, extensive sloughing takes place. These cases are best treated by a crucial incision extending to the full limits of the area involved. Each quadrant of skin is raised from the underlying tissues to the periphery of the infected area, taking the lid off, as it were, from the numerous columnar fatty compartments, thus relieving tension and providing free drainage. Hot, moist, antiseptic dressings are then applied. When the infection is over, the skin flaps should be replaced and the wound dressed as usual until healing takes place. If sloughing of the tissues has already taken place, the entire mass may be removed with knife or scissors after the skin flaps have been turned back, and then moist antiseptic dressings applied.

In a general way, the same procedure may be carried out in other regions of the body; but it is somewhat simplified, owing to the absence of the peculiar formation of the subcutaneous fat found in the back of the neck.

In carbuncles of the face, particularly of the lips, a very different condition exists. The almost entire absence of subcutaneous fat, the muscles being attached directly to the skin, the great vascularity with numerous freely anastomosing venous channels with direct communication with the sinuses of the brain through the angular and ophthalmic veins, make the danger of carbuncles in this region very great and the mortality high.

These cases should be treated with the utmost gentleness. They should never be pressed on or squeezed with the idea of pressing out the pus or the "core," on account of the great danger of spreading the infection along the veins or of dislodging septic thrombi. Experience shows that it is safer to apply hot, moist, antiseptic dressings and to allow the "center" to evacuate itself spontaneously.

LOCALIZED ARGYRIA

To the Editor:—Is there any treatment or process known to medical science whereby one can remove argyrol that has escaped under the skin and into the tissues beneath the eye, leaving a dark discoloration? The patient is 72 years old, and prominent. The accident occurred Saturday, December 1, while argyrol was being instilled, following the passage of a No. 5 probe through the tear duct. Please withhold name, and send any information at earliest possible date.

W. C. I.

ANSWER.—In a case so recent as this, there may be some absorption so that discoloration will be reduced somewhat; but argyrol injected into the lacrimal duct and sac may by extravasation produce permanent discoloration of the tissues. It is essentially localized argyria; the silver is changed either by light or by the tissue fluids into a nonsoluble silver salt or metallic silver. There is no practical way by which it can be removed.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Montgomery.

COLORADO: Denver, January 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

INDIANA: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, Indianapolis.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written Examinations in Class A Medical Schools. Part I, February 13-15, 1924. Secretary, J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Application for this examination must be made on or before January 15, 1924.

NEW YORK: Albany, Buffalo, New York and Syracuse, January 28-31. Ass't, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OREGON: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, January 29–February 2. Sec., J. George Becht, M.D., State Capitol, Harrisburg.

SOUTH DAKOTA: Pierre, January 15. Dir., Dr. H. R. Kenaston, Bonesteel.

WASHINGTON: Olympia, January 8. Sec., Mr. William Melville, Olympia.

WISCONSIN: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

INVESTIGATION OF LICENSES IN CONNECTICUT

THE JOURNAL has previously published the records of Frank Edward Gavlas, Donald W. Stewart and George E. Sutcliffe. This week, the report concerns the record of Isidor Yochelman, involved in the investigation.

Isidor Yochelman

In the Federation Bulletin of January, 1918, appeared an account of certain attempts to secure medical registration in Massachusetts by fraudulent methods. The first mentioned was one Isidor Yochelman. It appears that Yochelman applied for admission to medical licensure in Massachusetts in September, 1915, at which time he submitted the statement that he was a graduate of a school in Russia. At that time, Massachusetts did not require graduation in medicine as a prerequisite for examination, so an admission card to the examination was issued to him. It developed later that Yochelman had been admitted to the Tufts College Medical School of Boston in the autumn of 1914 on the strength of a certified statement of preliminary education issued by the Westerleigh Collegiate Institute of 386 Richmond Terrace, New Brighton, Staten Island, New York, later shown to be worthless. Yochelman had paid the Tufts school six months' tuition in advance, but did not appear for instruction. On the morning of the Massachusetts examination, Sept. 15, 1915, the examination card that was issued to Yochelman was presented by a man who was suspected of impersonating him. This man gave his name as Dr. Robert Malcolm, claiming residence in New Jersey. He attempted to explain how he had received the card issued to Yochelman. Later, Yochelman is said to have appeared at the Tufts Medical College to take the course in medicine for which he had paid. He was arrested on a charge of perjury, tried, convicted and sentenced to fifteen months in jail.

According to reports, Yochelman entered the Middlesex College of Medicine and Surgery, Sept. 20, 1917. He failed to supply credentials showing that he had satisfactorily completed the years of medical education which he claimed, but agreed to supply them later. While in this school his career was checkered with highly colored incidents and he failed to secure a diploma.

Yochelman is next discovered with a diploma from the St. Louis College of Physicians and Surgeons dated 1920, and claiming attendance in that school during the year 1919-1920. He was licensed by the eclectic board of Connecticut in July, 1920, notwithstanding his failure to produce credentials showing that he had actually passed the first three years of college work at any institution. In 1920, he practiced in New Haven; for a part of 1920, he was in Boston, and later he began to practice in Bridgeport. He received a license in pharmacy, June 29, 1921, in Connecticut by reciprocity with Massachusetts, in which he also held a pharmacy license. This license was revoked by the board one month after it was issued, following inspection by an investigator of the pharmacy board. Yochelman made no protest to the revocation of this license.

As has previously been mentioned, in July, 1923, the legislators of Connecticut passed a bill to validate the licenses of eighteen physicians who were under suspicion. This bill was vetoed by the governor, after which the eclectic examining board gave the candidates a second opportunity to pass, and Yochelman was among those passed. It was deemed necessary by the attorney general of the state that a new examination be passed, because the St. Louis College was not on the approved list for Connecticut for 1920, when Yochelman first passed. Then came the present exposure, which has resulted in the revocation of Yochelman's license along with those of seventeen other physicians. Yochelman's attitude has been remarkable. He said: "The eighteen will fight this thing to a finish. We have not had our licenses revoked, and they will not be revoked. Nobody has the power to revoke them." But the reports state that they have been revoked.

In his application for admission to the Middlesex College, Yochelman stated that he was born at Vilna, Russia, Jan. 28, 1891, and that his preliminary education consisted of eight years at the Hebrew Russian Vilna School. He, however, had no certificate in support of this statement.

To summarize: The educational record of Isidor Yochelman is so bestrewn with doubt and with evident falsification that to grant him a license to practice any kind or form of medicine is beyond comprehension; but the Connecticut eclectic board not only passed him once, but passed him again when state action made this necessary.

CLASSIFICATION OF THE DENTAL SCHOOLS

Following is a list of the dental schools in the United States as classified by the Dental Educational Council of America.

SEPT. 15, 1923

Schools are listed in alphabetical sequence by states for convenience only, the order of presentation within each class having no significance.

CLASS A

University of California Dental Department...San Francisco
University of Southern California College of Dentistry .....Los Angeles
Chicago College of Dental Surgery.....Chicago
Northwestern University Dental School.....Chicago
University of Illinois College of Dentistry.....Chicago
State University of Iowa College of Dentistry,.....Iowa City
University of Louisville College of Dentistry..Louisville, Ky.
Harvard University Dental School.....Boston
Tufts College Dental School.....Boston
University of Michigan College of Dental Surgery .....Ann Arbor, Mich.
University of Minnesota College of Dentistry....Minneapolis
St. Louis University School of Dentistry.....St. Louis
Washington University School of Dentistry.....St. Louis
Creighton University College of Dentistry.....Omaha
University of Buffalo College of Dentistry.....Buffalo
Western Reserve University Dental School.....Cleveland
Thomas W. Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania....Philadelphia
University of Pittsburgh School of Dentistry.....Pittsburgh
Vanderbilt University School of Dentistry..Nashville, Tenn.
Baylor University College of Dentistry.....Dallas, Texas
Marquette University College of Dentistry.....Milwaukee

CLASS B

College of Physicians and Surgeons of San Francisco .....San Francisco
University of Denver School of Dentistry.....Denver
(Formerly Colorado College of Dental Surgery)
Georgetown University Dental Department.Washington, D. C.
Howard University Dental College.....Washington, D. C.
Atlanta-Southern Dental College..... .....Atlanta, Ga.
Loyola University School of Dentistry.....New Orleans
Tulane University of Louisiana School of Dentistry .....New Orleans
University of Maryland School of Dentistry.....Baltimore
(Baltimore College of Dental Surgery was merged with it, June 15, 1923)

Kansas City-Western Dental College.....Kansas City, Mo.
University of Nebraska College of Dentistry.....Lincoln
Ohio State University College of Dentistry..Columbus, Ohio
North Pacific College of Dentistry.....Portland, Ore.
Temple University Dental School.....Philadelphia
(Formerly Philadelphia Dental College)
Meharry Dental College.....Nashville, Tenn.
University of Tennessee College of Dentistry.Memphis, Tenn.
Medical College of Virginia School of Dentistry
.....Richmond, Va.

CLASS C

Cincinnati College of Dental Surgery.....Cincinnati
Texas Dental College.....Houston, Texas

UNCLASSIFIED

Indiana Dental College*.....Indianapolis
Columbia University School of Dentistry†.....New York
(Incorporated with the College of Dental and Oral Surgery of New York)
New York College of Dentistry*.....New York
Ohio College of Dental Surgery*.....Cincinnati
(Affiliated with the University of Cincinnati, July 1, 1923; early complete merger in prospect)

MERGED RECENTLY WITH UNIVERSITIES

Colorado College of Dental Surgery.....Denver
(Merged with Denver University, June 15, 1922)
Baltimore College of Dental Surgery.....Baltimore
(Merged with the Dental Department of the University of Maryland, June 15, 1923)
College of Dental and Oral Surgery of New York.New York
(United with the School of Dentistry of Columbia University on July 1, 1923)

DISCONTINUED SINCE THE PUBLICATION OF THE CLASSIFICATION IN 1920

(1921) George Washington University Dental School
.....Washington, D. C.
(1923) University of West Tennessee Dental Department
.....Memphis, Tenn.

* Classification postponed until the next meeting of the council.
† Classification postponed until reorganization has been completed.

Montana April Examination

Dr. S. A. Cooney, secretary, Montana Board of Medical Examiners, reports the written examination held at Helena, April 3-5, 1923. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 failed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1901)	81.1, (1921)	91.5
State University of Iowa College of Medicine	(1919)		84.1
University of Louisville Medical Department	(1908)		82.1
University of Michigan	(1920)		85.7
University of Minnesota	(1913)		86.5
John A. Creighton Medical College	(1900)		85.8
University of Toronto Faculty of Medicine	(1922)		80.1

College	FAILED	Year Grad.	Per Cent.
Ensworth Medical College	(1909)		42.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University School of Medicine	(1917)		Idaho
Barnes Medical College	(1903)		Idaho

Utah April Examination

Mr. J. T. Hammond, director, Utah Department of Registration, reports the written examination held at Salt Lake City in April, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 4 candidates examined, 3 passed and 1 failed. Six candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1922)		76.1
University of Pennsylvania	(1921)	79.9, (1922)	86.8

College	FAILED	Year Grad.	Per Cent.
National University, Athens, Greece	(1916)*		35.9

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University Medical School	(1922)		Dist. Colum.
Rush Medical College	(1919)	(1920, 3)	Illinois
St. Louis University School of Medicine	(1920)		Missouri

* Graduation not verified.

Book Notices

USEFUL DRUGS. Prepared Under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Sixth Edition. Cloth. Price, 60 cents. Pp. 180. Chicago: American Medical Association, 1923.

As the known drug and biologic remedies increased to a formidable number, it became generally acknowledged that a critically restricted list would prove invaluable, and that a thorough knowledge of a few drugs would prove more advantageous than a smattering knowledge of many. In 1913, the Council on Pharmacy and Chemistry first compiled a list of medicaments that might be used as the basis of instruction in materia medica and related subjects, and as a basis for examination in these subjects by state medical examining and licensing boards. Many schools have adopted the book as a textbook, and many state examining and licensing boards confine their questions to the drugs listed. Since the first issue, an effort has been made to keep the book abreast of therapeutic progress, and it has gone through various editions. Largely because of this frequent editing, which has made each edition a reliable index to the new advances in materia medica, the general practitioner has come to look on "Useful Drugs" as a convenient and concise guide.

The sixth edition is now off the press. There have been omissions for various reasons. In the main, products were omitted because an accumulation of evidence has shown the relative unimportance of some formerly accepted preparations, or because some medicaments could be replaced to advantage by better or simpler ones still retained. On the other hand, there have been important admissions: anhydrous *d*-glucose for use in hemorrhage, shock, fevers, etc.; chaulmoogra oil and chaulmestrol for use in leprosy; insulin for use in diabetes; luminal, found to be advantageous in the treatment of epilepsy; neocinchophen, which has some advantages over cinchophen; quinidin sulphate, which, in clinical use, has given evidence sufficient to warrant its inclusion; diphtheria toxin-antitoxin mixture and standardized rabies virus. All of these new substances are described critically and briefly, and a statement of their actions, uses and dosage is given. The actions, usage and dosage statements of the articles already in the book are revised so as to bring them up to date.

In addition to these changes, the discussion of pharmaceutic preparations, such as confections, honeys, fatty oils and volatile oils, has been transferred to the appendix. The therapeutic index has been revised; a series of tables of metric and apothecary equivalents has been added. These changes, it is believed, have materially increased the value of the book. "Useful Drugs," Sixth Edition, should be a most valuable and usable book for the physician and the medical student.

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR. Volume V: Military Hospitals in the United States. By Lieut. Col. Frank W. Weed, M.C., U. S. Army. Prepared under the direction of Major-Gen. M. W. Ireland, M.D., Surgeon General of the Army. Cloth. Price, $2.25. Pp. 857, with 204 illustrations. Washington: Government Printing Office, 1923.

This volume has been prepared largely by Lieut. Col. Frank W. Weed, although various chapters represent work of specialists in certain branches. The book begins with a history of military hospitals, and describes their growth up to the time of the World War. It then outlines the method of providing hospitals and supplies. The section on construction and improvement of hospitals is especially well illustrated. Eight chapters are devoted to the organization, administration and control of military hospitals, taking up such matters as water supply, sewage disposal, transportation and demobilization. Part four deals with the types of hospitals from the camp base hospital through the various general hospitals, aviation hospital, aeroplane, ambulance and embarkation and debarkation hospitals. The final section includes a description and discussion of each of the institutions established during the World War for which records are available. These

include maps of the institutions, photographs when available, and statistics as complete as possible. The volume is well printed, the photographs carefully selected, and the book, as a whole, is a credit to the medical department of the army.

Anatomical and Physiological Studies on the Growth of the Inner Ear of the Albino Rat. By Tokujiro Wada. Memoirs of the Wistar Institute of Anatomy and Biology, No. 10. Paper. Price, $4. Pp. 174, with illustrations. Philadelphia: The Wistar Institute of Anatomy and Biology, 1923.

In the minuteness and care with which each anatomic structure in the cochlea has been studied, this memoir is typical of the work published from the Wistar Institute. There appears to be no cell in the acoustic apparatus of the albino rat that has escaped measurement, not once but in each cochlear turn and at varying ages. How painstaking and thorough it is may be partly realized when one states that there are 113 tables of microscopic measurements of the anatomic cells which make up the cochlea, mostly made by the author. Two examples may be given. In fourteen rats varying in age from 1 day to 546 days there are radial measurements of the membrana tectoria in the four turns of the cochlea; and there are given the computed diameters of the cell bodies and their nuclei in the spiral ganglion according to the turns of the cochlea in the same number of rats. Many of these tables are charted so that the results can be graphically shown, enabling the reader more easily to grasp the differences at various ages. In addition there are figures showing the morphologic changes in each part of the tympanic wall of the cochlear duct during growth. The final chapter is devoted to a study of the growth of the largest nerve cells in the vestibular ganglion.

The albino rat has no hearing at birth, and first shows reaction to sounds between the ninth and the twelfth day. Dr. Wada investigated the cochlear changes in rats at various ages (from 1 day to 546 days), including two rats 9 days old, one of which reacted to sound and the other did not. Therefore, in this study we have a presentation of developmental changes that should help to make clear the anatomic structure necessary for hearing in the white rat.

The technic employed in fixing was that which Yoshii had found so advantageous in his cochlear investigations and which is recognized as one of the most suitable to study the structure of so delicate an organ. It leaves, however, something still to be desired, especially when one studies such a soft structure as the tectorial membrane and tries to fix its exact position relative to the spiral organ. This membrane is always more or less altered by all fixing agents now in use, and must be so if, as Hardesty says, it consists of fine fibrils embedded in a gelatinous matrix. To get its real structure, one would have to fall back on some such method of examination as Hardesty employed.

The author clearly shows that the inception of hearing coincides with the development not of one but of each constituent of the spiral organ of Corti, and this development occurs rapidly at the age at which the animal hears. The papilla in the lower turn is the first part to reach a high degree of differentiation. This differentiation passes rapidly from the basal coil and travels to the apex. A rat which reacts to only a note of high pitch will one or two days later react to a note of low pitch, a result which accords with the well known fact that the papilla in the lower turn responds to sounds of high pitch, while in the upper turn it responds to sounds of low pitch.

That the papilla is more differentiated in the hearing rat is well exemplified by a comparison of the histologic structure of the cochlea in two rats 9 days old, one of which could hear and the other could not. This consists not in the detachment of the tectorial membrane from the papilla spiralis, but in the degree of differentiation of the constituents of the papilla, the differentiation of the hair cells and the pillars of Corti, and the opening up of the tunnel of Corti and the appearance of Nuel's space. In the hearing rat the tectorial membrane has reached the outermost row of the hair cells, while in the nonhearing rat it has not yet reached the second row of the cells. It is not the freeing of the tectorial membrane from the papilla spiralis that is necessary to the appearance of the hearing reflex, but the differentiation of the papilla, and its changes in form and position under the membrana tectoria. The author's tables confirm the accepted view that the cells composing the organ of Corti, the total breadth of the basilar membrane, the breadth of the zona arcuata, the height of the tunnel of Corti, increase from base to apex. It is to be regretted that some details have not been given on the ligamentum spiralis externa, which increases in size as one passes from apex to base—a fact which may have a bearing on the tension of the basilar membrane and on its function.

The relation of the membrana tectoria to the papilla spiralis was carefully studied. In the nonhearing rat it is slightly shorter, and fine fibers connect it to the papilla and to Hensen's prominence. In the hearing rat these fibers are absent and the membrane does not reach Hensen's prominence, as it appears to do in the pig. In the hearing rat in the earliest ages there is still a connection of the membrane with the terminal frame of the lamina reticularis. What happens as development progresses to this connection is a point on which opinions differ. Some hold that this connection remains through life; others assert that the membrane projects free in the endolymph. In the adult cochlea, Dr. Wada has never seen this connection, nor did he observe a connection of the membrane with the hairs of the hair cells. In the young rats, at 15 days, one very often may see on the terminal frame the broken remainder of the connecting threads. Whether this break arises through natural development or is the result of artificial manipulation, he is unable to say. His results in the rat agree in the main with those of Hardesty in the pig, who, however, obtained a tectorial membrane floating free in the endolymph at its outer zone. The assertion that, in an animal capable of hearing, the membrana tectoria is never connected with the papilla spiralis, is not supported by his observation. He points out that the freeing of the outer zone of the membrane is not absolutely necessary for the mediation of auditory impulses, for in the cochlea of birds the membrane remains through life attached to the epithelial ridge.

We know of no work on the anatomy of the cochlea in which so many details have been so carefully studied. While the value of this monograph may not be easily grasped by the ordinary reader, the future investigator of the auditory organ will find this wealth of detailed information most useful and stimulating. It is an investigation well worthy of a place in that series of monographs which has given the "American Anatomical Memoirs" a distinguished place in anatomic literature.

Nouveau traité de médecine. Publié sous la direction G. H. Roger, Fernand Widal, P. J. Teissier. Secrétaire de la rédaction: M. Garnier. Fascicule XII: Pathologie de l'appareil respiratoire (suite). Cloth. Price 45 francs. Pp. 596, with 66 illustrations. Fascicule XV: Affections des glandes salivaires, du pancréas et du péritoine. Cloth. Price, 40 francs. Pp. 568, with 135 illustrations. Paris: Masson et Cie, 1923.

This volume of the system of medicine edited by Roger, Widal and others would be a credit to any similar work. It is most complete, encyclopedic in nature, and at the same time is not verbose. It does not restrict itself to presenting only the point of view of modern French medicine, but embraces all points of view available at the time of its publication. It is, indeed, commendable to find a French work that gives English, German, Italian and other foreign references as well as those written in the French language. The work is practical, and contains no fantastic and unproved theories, which are commonly presented as proved and accepted facts in so many modern French medical works. The book is well written. The illustrations are numerous and are well done, especially the plates of the pathologic specimens presented under pulmonary tuberculosis. Throughout the work the pathologic-anatomic side is presented in a most thorough and satisfactory fashion. Letulle and Halbron, in their treatise on pulmonary tuberculosis and nontuberculous pulmonary infections, have in no way neglected the development of their subject. A concise and accurate history of the white plague is given. The authors have inserted such topics as traumatism and tuberculosis, gas intoxication (war gassing) and its relation to tuberculosis, and wounds of the chest and tuberculosis.

This material is drawn from the French war experiences. The symptomatology, physical signs, physical examination, roentgen ray and spirometry are given completely. A thorough review of the therapeutic measures in vogue is given, and the worth of such methods closely scrutinized.

Volume XII is devoted to the salivary glands, pancreas and peritoneum. The bibliography is international, and the book is well illustrated. The section on the salivary glands, by Parmentier and Chabrol, makes very interesting reading. The anatomy, physiology, chemistry of the salivary secretions, and pathologic physiology are covered in detail. Such conditions as Mikulicz' syndrome, actinomycosis and syphilis of the salivary glands are in no way neglected because of their rarity. The authors accept the cause of Mikulicz' syndrome to be either tuberculosis or syphilis. In the section devoted to the pancreas, a complete and comprehensive review of the pancreatic functional tests is given, followed by a critical discussion of their relative merits. When diabetes mellitus is discussed, one finds a review of the literature prior to the advent of insulin. Unfortunately, this work was written before insulin, and this important chapter in the history of diabetes is missing. It is indeed striking that in the consideration of the treatment of diabetes only the general rules of procedure are given; no details regarding the dietary regimen or the combating of the accompaning acidosis are to be found. Such details in the treatment of diabetes certainly should have a place in a system of medicine.

PRACTICAL LOCAL ANESTHESIA AND ITS SURGICAL TECHNIC. By Robert Emmett Farr, M.D., F.A.C.S. Cloth. Price, $8. Pp. 529, with 219 illustrations. Philadelphia: Lea & Febiger, 1923.

This book is divided into three parts. In Part 1 is discussed the general subject of anesthetics, and the equipment which the author uses in local anesthesia, with the general technic and the anatomy of the sensory nervous system. Part 2 deals with local anesthesia in surgery of all regions of the body except the abdomen, while Part 3 takes up local anesthesia of the abdominal wall and cavity. The statement that ether itself is not an anesthetic agent and that its anesthetizing properties are due to so-called impurities is incorrect, and as ethanesal, a supposed improved ether, is not a substance of definite composition, it should not be substituted for pure ether as a general anesthetic. As a rule, the author uses the infiltration method of producing local anesthesia in preference to so-called nerve blocking, on account of its greater simplicity and ease of application. In addition to the method of producing local anesthesia for a particular operation, the author frequently enters into a discussion of the technic of the operation itself, and numerous case records are cited illustrating the points brought out. In his descriptions, the author has given the most careful attention to the minutest detail in the hope that thereby he may bring about a more extended use of a method which possesses many advantages over general anesthesia in such a large part of the surgeon's work.

THE NORMAL CHILD. Its Care and Feeding. By Alan Brown, M.B., Physician in Chief to the Hospital for Sick Children, Toronto. Cloth. Price, $1.25. Pp. 254, with 11 illustrations. New York: The Century Company, 1923.

The list of books to advise mothers in the care of their children continues to increase rapidly; indeed, there has come to be such a similarity in standards that one wonders when the production of such volumes will end. In the preparation of the present book, Dr. Brown has availed himself of many previously published books of this character: for instance, he includes much material taken from government pamphlets; the entire chapter on growth of infant and child is taken from the book by Crozer-Griffith, and other sections are taken from books by Read, Bancroft, Smith and Pattie. The present volume would therefore appear to be an attempt to arrive at a standard outline. This it does in a fairly comprehensive way. It is unfortunate, however, that the author should say in the introductory chapter that the growing infant requires more attention than can be given by one person, and that mothers must have helpers. The mother with trained helpers is not so dependent on book advice as she who has none.

Miscellany

HOW THE DOCTOR LOOKS TO THE LAYMAN

WILLIAM BYRON FORBUSH, PH.D.
NEW YORK

Whenever the average American thinks about a doctor he counts him among the things he cannot afford. The wholesome citizen discounts sickness, and is certain that any malady that attacks himself must be a minor ailment. "I haven't time to be sick, and I cannot afford a doctor" are the two thoughts that rush to his mind whenever he feels a pain or suspects a fever. Diagnosing his case as worth about half a dollar to cure, he goes to the drug store, and says, "Doc, what you got that's good for a touch of malaria?" instead of calling the family physician. The average man does not think the doctor is too avaricious. He does not sympathize with the current bit of humor to the effect that surgeons administer ether so as to get a chance to examine their patients' pocket-books. It is were his wife, or child, he would be giving hurry-calls by telephone; but since it is himself, he carries home a bottle of bitters and warms up his stomach and forgets it.

Most of us are afraid of doctors. Four things the layman dreads are: appendicitis, cancer, all sorts of surgery, and being under an anesthetic. We regard these with equal seriousness. If I had a pain below the belt on either side I should be certain it was appendicitis, and if above the belt, I would suspect cancer. My mother died, unnecessarily, because she was "afraid of the knife," and I should be likely to imitate her. I suppose I must be shy of anesthesia because I fear that I may talk in my sleep. I wouldn't object to being unconscious if there weren't always so many people around.

The physician does not realize the ignorance of the average layman on medical matters. Although he may be interested in other sciences, even the intelligent reader seldom reads anything medical. The illustrations in physiologies and manuals of surgery are too intimate and unappetizing. Most homes contain no books on disease except "Holt" and a "patent medicine" almanac. As the result, we cherish certain superstitions, fixed ideas, and prejudices, that are medieval.

I was a pastor for nearly a quarter of a century. I made more calls than most physicians; I knew intimately thousands of families of the middle class, and since many of my visits were necessarily of a perfunctory character, I used to amuse and instruct myself by listening to the medical theories of the average American mother. I found that the home remedies were cherished, because they seem to be Nature's gifts. Hen oil, goose grease, pussy willow, garden herbs, and what was supposed to "draw," externally like mustard, or internally like yeast, were highly esteemed. I noticed that advertised remedies that seemed natural and simple were especially trusted: certain medicated muds, some to be rubbed on and others to be bathed in, Father John's medicine, because the reverend quack certainly would never deceive, and Mrs. Winslow's syrup, because she must have had the heart of a mother. I was myself brought up on two remedies, rhubarb and jamaica ginger, for the two opposites.

The common people like remedies that are active and tangible. When they take a laxative, they want to feel it work. They have more confidence in a tonic if it is bitter. They trusted "Oxydonor," because they could see it and take hold of it—some even said it was "heating," although I believe the nickel cylinder was filled with cold charcoal. They favor osteopathy and chiropractic because, when a strong man plays knuckle-bones on one's vertebrae, it seems as if something must be happening. The phrenologist still attracts, for a similar reason

Average people are mystics as to disease. The physician too often forgets that the ancient medicine-man, of whom he is the lineal descendant, was also a priest. He is too matter-of-fact in his diagnosis and too dependent on mere materia medica for his cures. In our hectic America, a physical malady, at least among busy adults, is often the only occasion when the patient has time to yield to his deeper mental and spiritual illnesses. Clairvoyance had its turn because it claimed to lay hold on the immaterial. Christian scientists, the Lydia Pinkhams of the soul, have capitalized the fact that most people who are ill need a mother, a chance to relax, and the upward look. The reason so many people try it but do not join it is that as soon as it ceases to be interesting it becomes slightly amusing.

When we average people do go to a physician, usually we trust him implicitly, partly because we do not send for him until we are desperate, partly because we are certain that our own ailments are significant, and are bound to become a part of medical history; usually because he deserves by his train-in, his ability and his character all the confidence we place in him. As I trailed around after many physicians in my pastoral course, I knew that they and not I were the family counselors, the father confessors, and sometimes the spiritual advisers, of my people. They were the only professional men who always honored the truth. I found them dealing wisely with the follies and sins and hypochondrias of their patients. I was called only after they had left the cradle of the new-born baby, the couch of the chronic sufferer, the bedside of the dying.

Still I think that the modern physician ought to realize more deeply and minister more wisely to the ignorance, rather than to the sickness of the average person.

His greatest duty today is to educate us. I rejoice as I have not for many a day in the appearance of *Hygeia*. Nothing is more needed. There is a pseudo-scientific periodical, devoted to "drugless healing" and alluring sex-stories, that has three times the circulation of the leading medical journal in America. There are still misleading popular handbooks whose advice as to medical care is antiquated and perilous, but which are distributed by thousands. Into almost every community come lecturers every year who proclaim the most foolish ideas about the cure of disease and the care of the health.

I believe that the intelligent layman is ready for a national campaign of health education. He would be interested in the history of medicine, for nothing is more convincing as a defense against the quick, easy, short-cut theories of the outlaw schools than an account of the patience, the perils, the infinite cost with which what we know of asepsis, immunization and the few specifics was won. He would be thrilled by the heroology of medicine. He would be interested to learn the difference between a lesion and a lotion, and to be informed that vomica is not necessarily a vomiter. He needs more comprehensive sex education and an austere course of instruction as to the supposed necessity of self-expression through immorality. He would welcome community courses in hygiene, real quarantine, and the after-cure of the sick.

With such a popularizing of medicine through the friendly cooperation of local medical societies, we shall learn to call the doctor more often when we are well, so that we shall less often be sick. We shall engage him to teach us the regimen of living, and how to prolong life joyously instead of to eke it out. We shall then understand the peril of substituting the soda fountain clerk for the physician, in dealing with human lives. And we shall learn the difference between St. Luke the good physician and St. Vitus the backbone manipulator.

115 Broadway.

REPORT OF THE CHILDREN'S BUREAU

The first official report of activities under the Sheppard-Towner maternity and infancy act has been made public. Forty states are now cooperating with the federal government, for which Congress is permitted to appropriate $1,240,000 annually. The only states that have not accepted the provisions of this law are Vermont; Massachusetts; Rhode Island; Maine, where the legislature passed an acceptance act which the governor vetoed; Louisiana and Illinois, where the act received a majority in the senate but failed to pass the house; Kansas, where the act passed the senate, but did not come to a vote in the house; and Connecticut, where the last legislature instructed the health department not to accept the funds available under the act.

The national administration of the maternity and infancy act is lodged with the Children's Bureau, of which Miss Grace Abbott is chief. The report recommends the extension of the act to Alaska, Hawaii, Porto Rico and the Philippine Islands.

The Children's Bureau cooperated with the Community Health Service of Boston during the year in the demonstration of a habit-clinic for preschool children. An analysis of the results will be published later. A survey of nutrition work being done for children of preschool age in nine Eastern and Midwestern cities, and three rural communities was made, and a report is being prepared. A study of the growth of young children with special reference to rickets, the influence of children's diets, of the diets of nursing mothers, and of housing and sunlight, has been made in the District of Columbia in cooperation with the Child Welfare Society of the district. A study to determine methods to prevent rickets to be undertaken in cooperation with the Yale University Medical School at New Haven, Conn., is under consideration. Rural child labor and its relation to attendance at school has been investigated by the bureau in Colorado, Connecticut, Illinois, Kentucky, Maryland, Massachusetts, Michigan, New Jersey, North Dakota, South Carolina, Texas and Virginia. Detailed information concerning 11,000 rural child laborers has thus been obtained. Surveys of children in street trades in Wilkes-Barre, Pa., Columbus, Ohio, Atlanta, Ga., and Omaha have also been made. The Children's Bureau distributed 821,735 bureau publications in the last year, and received 98,533 letters, mostly from parents seeking information on some phase of child care.

A SACRIFICE TO INCOMPETENCE

The liability of a cultist for the consequences of his neglect, ignorance or unskilfulness was recently established by the supreme court of the state of Washington. Carroll, a "limited sanipractor," licensed to treat the sick by hydrotherapy, was called to attend the 8 year old son of the plaintiff, Mrs. Wilcox. The mother told the defendant when she summoned him that she feared her son had appendicitis. He assured her that that could not be the case, because the appendix did not form until a child was at least 10 years of age. The patient was suffering, he said, from either spinal meningitis or from infantile paralysis, and if a regular physician were called in, he would inject serum into the spine of the child, making him a cripple for life. The patient was carried to the defendant's office daily, from Dec. 30, 1921, until Jan. 6, 1922. Then the mother became alarmed and summoned the sanipractor to her home. He responded and wrapped the child in a wet sheet, but the patient becoming rapidly worse, the mother telephoned to the sanipractor. Then he admitted that there was something about the case he did not understand, and advised that a regular physician be called, requesting, however, that the physician be not informed that the sanipractor defendant had been in attendance. The physician found the patient suffering from acute appendicitis. An immediate operation was done, releasing more than a pint of pus and disclosing the appendix ruptured and gangrenous. The child died the following morning. The court found that the mother, having summoned Carroll knowing that he was an adherent to a school of healing that would not operate, could not complain because an operation was not performed. But, judged even by the tenets of the school of limited sani-

practors, to which the defendant belonged, he was found to have failed in his duty toward the patient, and a judgment of $2,500 rendered against him in the lower court was allowed to stand.

Medicolegal

Admissibility of Evidence of Insanity of Relatives

(State v. Fenik (R. I.), 121 Atl. R. 218)

The Supreme Court of Rhode Island says that in this homicide case, in which the defense was insanity, the trial justice ruled that testimony of insanity of either the father or the mother would be allowed, but as to relatives beyond that it was too remote. Counsel for the defense stated that he desired to offer proof of insanity of the defendant's grandfather. That was not allowed, and the offer was then made of proof of insanity in the family of the defendant on both sides, which also was ruled out, as was likewise an offer of proof of insanity of a sister of the defendant's mother. The rulings rejecting the testimony mentioned were based on the ground that it was too remote. But the exclusion of this testimony was an error. From the evidence already in the case at the time, it was apparent that there was some basis for the contention that the defendant was suffering from mental disease or insanity, not merely of a temporary and transient nature, but which might be found to be hereditary. Proof of the possibility of such an inheritance from the parents would be strengthened by proof of insanity in one or both of the grandparents. Such evidence is admissible, both on principle and on authority. To exclude testimony of insanity in the direct lineal line of the ancestors of the accused in the present case might result in depriving both the jury and the medical witnesses of valuable evidence, and might result in grave injustice to the accused. With regard to the admissibility of evidence of insanity in collateral kinsmen, a more difficult question is presented, and within reasonable limits much must be left to the reasonable discretion of the trial justice, in view of the circumstances of each particular case. In the case at bar, this court thinks that the proof of insanity of the defendant's aunt was improperly excluded; and the exceptions on this point are sustained.

Automobilist's Promise and Liability to Physician

(Douglas v. Brandt (Conn.), 121 Atl. R. 179)

The Supreme Court of Errors of Connecticut finds no error in a judgment rendered in favor of the plaintiff physician for services in the treatment of a child that was seriously injured by the defendant in the operation of his automobile. The court says that the plaintiff maintained that he had proved that when the child was brought to his office by the defendant and the latter was asked who would be financially responsible for the treatment, the defendant answered: "I am responsible, Doctor, I will pay all bills"; that when the child was then taken to a hospital the defendant told the matron, "I will pay all bills," and on two subsequent occasions said to the plaintiff that he expected to pay all the bills. On the other hand, the defendant offered evidence to prove that he did not promise to pay or be responsible for the services rendered either at the time the child was in the plaintiff's office or at any subsequent time.

The defendant presented four questions on his appeal. The first one was: Were the circumstances such that a contract on the part of the defendant could be inferred to pay the plaintiff for the services for the value of which this action was begun? The finding recited as the foundation of this action an express promise on the part of the defendant to pay for all services required in the treatment of the injured child, coupled with his explicit assertion of responsibility for the services so rendered. That was an original promise made orally, on the faith of which the plaintiff performed services. If the contract was not barred by the statute of frauds requiring certain contracts to be in writing, it had all the elements necessary to a legal contract.

Was there a consideration for the contract? The answer to that question was that the plaintiff in reliance on the defendant's promise performed these services, which he was not legally bound to do, and this constituted in law a valid consideration.

Was the oral contract within the statute of frauds? The defendant contended that, generally speaking, an oral undertaking by a person not previously liable for the purpose of securing the debt or performing the same duty for which the person for whom the undertaking is made remains liable, is within the statute and must be in writing. But the court holds that the answer to this third question must be, "No," since the undertaking of the defendant was an original promise, and not a collateral one. The principle stated by him was true, but the situation as found by the trial court made that principle wholly inapplicable, and the court's refusal to instruct the jury on the statute of frauds was properly based on the fact that the evidence did not authorize a finding of a collateral undertaking, and it was as to such only that the statute of fraud applied. The issue submitted to the jury was one of fact as to whether there was an original contract on the part of the defendant, as the plaintiff claimed, or that there was no such promise, as the defendant contended, and that was the only issue properly before the jury.

The defendant's fourth question was, Could an action of this character be brought under what are termed the common counts? The bill of particulars in effect struck out all the paragraphs of the common counts not applicable, and left the case as one for work performed and professional services rendered under an express employment to pay a compensation not determined of a named value, which the defendant had never paid. For such a case the common counts is an appropriate remedy.

Compensation from Employer Bars Recovery from Physician for Malpractice

(Pitkin v. Chapman (N. Y.), 200 N. Y. Supp. 235)

The Supreme Court of New York, Special Term, Warren County, in granting a motion made by the defendant, a physician, for a judgment on the pleadings, says that he was charged with malpractice in treating injuries sustained by the plaintiff in a fall from a piazza roof. The defendant's answer alleged that the plaintiff had been awarded $1,374.26, under the workmen's compensation law, for all his injuries, based on his condition at the time of the award, which sum he received before the commencement of this action. It also appeared that the alleged malpractice occurred before the final award.

There can be but one recovery for the same wrong. Satisfaction by one joint tort-feasor or wrongdoer has always been considered a bar to an action against another. Though an original injury is added to by a second fracture, resulting while the injured employee is acting in a prudent manner, the insurer, liable under the workmen's compensation law for the first injury, is also liable for the additional one. If a person injured employs in good faith a physician reputed competent, the original wrongdoer cannot escape entire liability, though the injuries are aggravated—or even death results—because of mistakes in medical treatment. A wrongdoer cannot take advantage of the mistakes of a physician or surgeon in treating the injury. The mistake of the physician could not have occurred but for the original wrong. Therefore the physician is not an intervening person responsible to the injured, if the injured seeks to hold only the original wrongdoer. This has been held so often in actions at common law that in such cases it is not an open question. The workmen's compensation law of New York State does not alter this just and salutary principle. There can still be but one compensation for one wrong. That act provided a sure and certain compensation for a workman injured in the course of his employment. It did not provide or attempt to provide, in contravention of the common law, that there could be two recoveries for what the common law had theretofore held to be one wrong—one injury.

The compensation law requires the injured employee to elect whether he will take compensation thereunder or pro-

ceed under his common-law rights. Having once elected, he is bound thereby. The remedy is exclusive. Since there can be but one recovery for an injury, the statute provides that, when another is partly or wholly responsible therefor, the one paying shall be subrogated to the remedy of the employee against such other. And this must be true, whether the wrongs of two tort-feasors were simultaneous, or whether one wrong, as was alleged in this case, was subsequently committed. Here the employer responded in full for the injury, including the malpractice alleged. If any action lay against the physician, it was one in favor of the employer, who was subrogated to such right.

"Unusual Cases" for Medical and Hospital Services

(Rys' Case; White's Case; Willis' Case (Mass.), 139 N. E. R. 505)

The Supreme Judicial Court of Massachusetts says that two of these cases were for medical services, and the third was for hospital treatment furnished to an injured employee. The industrial accident board found that each of them was an "unusual case," within the meaning of the workmen's compensation act of Massachusetts, and that the insurer was liable for a longer period than the first two weeks of incapacity. The statute provides that during the first two weeks after the injury, and in unusual cases, in the discretion of the department, for a longer period, the insurer shall furnish adequate and reasonable medical and hospital services, and medicines if needed.

The difficulty of defining in advance what constitutes an unusual as distinguished from the usual or ordinary case, is inherent in the word itself, when used in connection with a subject so comprehensive and varied as human injuries. The unusualness has reference primarily to the nature of the injury itself. Among the "unusual" cases would ordinarily be included, for example, those requiring major operations, spinal injuries calling for expensive special apparatus, and serious injuries to the eye or brain demanding the services of specialists. It is equally clear that the statute is not applicable to the common minor injury, calling for ordinary medical treatment, even though treatment for more than two weeks is necessary. Cases close to the line on either side must be determined by their particular facts.

Rys received treatment on the first two days at a relief station, after which he was treated for a little more than four months at a physician's office, except on two days when one finger and a portion of another were amputated. The industrial accident board made a finding that the injury in this case was a very serious one, complicated by unusual conditions, including degeneration of the skin, laceration of the tissues, necrosis of the bone and tissues, and hemorrhage; that the injury necessitated the amputation of the first and two thirds of the second phalange of the middle finger and the first, second, and two thirds of the phalange of the fourth finger of the right hand; and that the employee as a result of the injury had lost the ability to grip with his right hand; had no movement in the first phalange of the little finger, and no movement in the first and second phalanges of the index finger. The insurer contended that this was not an "unusual case" under the statute, and that the board was not warranted in holding it liable for the medical services rendered more than two weeks after the injury; but the court holds that the nature of the injury, complicated as it was by the serious condition of the skin, tissues, and bone, was such that this court cannot say the finding of the board was unwarranted; in consequence of which the court affirms a decree for compensation for the services of the physician who treated the case.

In White's case the palm of his left hand was cut and lacerated, and dirt was ground into it; but he was able to return to work after treatment for five weeks by a physician. The wound was infected, and blood poisoning set in; but the treatment after the first two weeks was that of dressing the wound, which was sometimes done by the physician's assistant. The case did not require the services of a specialist. There were thirty-one visits—all but two at the physician's office. The court is of the opinion that the board was not warranted in finding that this was an "unusual case," within the meaning of the statute; wherefore the court holds that the decree in this case must be reversed, and one entered ordering the insurer to pay the medical expenses for the first two weeks after the injury.

Willis broke his right leg, and nine months thereafter, while still incapacitated and receiving compensation, "on account of his knee being weak, he fell down and fractured the old fracture." The board ruled that this was an "unusual case," and that the insurer should pay the hospital bill necessitated by the second fracture. But because the record failed to disclose how the accident happened, or to show any causal connection between the original injury and the second fracture, the court reverses the decree for the payment of the hospital bill, and recommits the case to the board for a further hearing on the question of the seriousness of the injury and its relation to the original accident. The mere recurrence of the fracture was not enough to show that this arose out of Willis' employment, as did the first fracture.

Injury to Patient in Pay Wing of City Hospital

(Wallwork v. City of Nashville et al. (Tenn.), 251 S. W. R. 775)

The Supreme Court of Tennessee, in affirming a judgment in favor of the defendants, says that they were the city, the hospital commissioners of the city, and two nurses in charge of the ward in which the plaintiff was a patient when, as it was alleged, she was negligently burned with a hot water bottle after she had undergone an appendectomy. It was conceded that a hospital created and existing for purely governmental purposes, and under the exclusive ownership and control of the city, is not liable for injuries to a patient caused by the negligence or misconduct of its employees. But counsel for the plaintiff contended that, since this hospital maintained a wing for those who were enabled to pay in part, the city thereby became liable for any injuries resulting to a patient in that wing, their insistence being that the fact that the plaintiff paid for a part of the services rendered to her took the case out of the general rule. This question has not been heretofore passed on by this court in any reported case. It may be said, however, that by the great weight of authority it is now held, on grounds of public policy, that a private charitable hospital which has exercised ordinary care in the selection of its employees is not liable for injuries resulting from their negligence. It is also held that the rule applies to a pay patient as well as to one who does not pay. The principle of law as to private charitable hospitals on reason would apply to a municipal charitable hospital, for courts would not extend a greater latitude of exemption to a privately conducted charity than to a public one; for in the former the service rendered might be restricted to certain classes, while in the latter the service is extended to all citizens. There was no allegation or claim that the city or the commissioners did not exercise ordinary care in the selection of its employees, and, on both reason and authority, this court is of the opinion that no error was committed in sustaining a directed verdict in favor of the city and the hospital commissioners. Nor does this court think that a case was made against the nurses in this instance.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

Association for Research in Nervous and Mental Diseases, New York, Dec. 27-28. Dr. Sanger Brown, 2d, 173 E. 70th St., New York, Sec'y.

District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Sioux Valley Medical Association, Sioux City, Iowa, Jan. 22-24. Dr. Ralph M. Waters, 107 Gilman Terrace, Sioux City, Iowa, Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

6: 389-516 (Oct.) 1923

Cystocele and High Rectocele. T. J. Watkins, Chicago.—p. 389.
*Relaton Between Placenta and Secretion of Milk. O. Frankl, Vienna.—p. 399.
*Follow-Up Results of 908 Cases of Uterine Cancer Treated by Radium. H. Bailey and W. P. Healy, New York.—p. 402.
Pathology of Vulvar Diseases. F. T. Taussig, St. Louis.—p. 407.
*Prevention of Fetal Asphyxia. R. A. Bartholomew, Atlanta, Ga.—p. 418.
*Calcium and Magnesium Content of Blood Serum During Pregnancy, Labor and Puerperium. E. D. Plass and L. J. Bogert, Detroit.—p. 427.
Outline of Postpartum Care. H. Thoms, New Haven, Conn.—p. 444.
*Feeding of Placental Extract to Mothers; Its Effect on Breast-Fed Infants. S. E. Abrams, St. Louis.—p. 450.
Painless Childbirth by Synergistic Methods. J. T. Gwathemey, E. P. Donovan, J. O'Reagan and L. R. Cowan. New York.—p. 456.
Germicides for Use on Skin. E. McDonald, Philadelphia.—p. 467.
Dystocia in an Eclamptic Due to Cystic Hygroma of Pectoral Region of Fetus. F. T. Iiams, Houston, Tex.—p. 475.
Tuberculous Ovarian Cysts. G. L. Moench, New York.—p. 478.

Relation Between Placenta and Secretion of Milk.—Frankl refers to experiments which prove that in animals known to have ample milk the effective grafting of placenta temporarily hinders milk secretion, evidently under the influence of an active hormone supplied by the living placenta.

Radium Therapy of Uterine Cancer.—Bailey and Healy believe that their results are encouraging and that they could not have been obtained without the use of massive doses of radium and without thoroughly radiating the parametrium.

Prevention of Fetal Asphyxia.—A fetal heart rate that becomes persistently slowed to not less than 100 during pains, but increases to normal rate between pains, Bartholomew says is a sufficient indication to follow the heart rate more frequently, discover the cause if possible, and make preparation for interference, if required. A fetal heart rate persistently below 100 both during and between pains, demands prompt delivery of the baby if this can be done without great risk to the mother. A rapid heart rate does not indicate either a threatened, or an advanced state of asphyxia.

Calcium and Magnesium Content of Blood Serum During Pregnancy.—Analyses made by Plass and Bogert on 105 normal pregnant women showed a definite and consistent tendency toward a lowering of serum calcium during pregnancy. This tendency was more marked toward the end of the period of gestation. The average values for serum calcium in normal pregnant women were distinctly lower than the average for normal nonpregnant women (917 mg. per cent.). The values for serum calcium obtained in cases of the toxemias of pregnancy are quite comparable to those found in normal women at the same period of gestation. There is no evidence that low serum calcium bears a causal relation to the convulsive manifestations of eclampsia. The serum magnesium in normal nonpregnant women was remarkably constant. The magnesium content of the serum showed a tendency to be lower toward the end of pregnancy, and especially at the time of labor. A few determinations of serum magnesium in cases of toxemia gave values within the upper limits of the normal range. Both the calcium and magnesium content of the serum return to normal shortly after delivery. The serum of lactating women showed no significant variations in calcium and magnesium content from that of normal nonpregnant women.

Effect of Placental Feeding on Milk Secretion.—Although placental medication does influence either milk secretion or the immediate growth of the infant, Abrams feels that neither a real galactogogue, nor the main stimulus of milk secretion has been discovered in dried placental tissue. His results in seventy-six cases have not been sufficiently clear. He believes that if the parental secretion really stimulates the secretion of milk, the feeding of large amounts should produce effects which could be seen grossly and without question in most cases, especially in those who already have a large amount and large breasts. By far the best stimulus to milk secretion is a large hungry baby and a cooperating mother.

American Journal of Ophthalmology, Chicago

6: 881-954 (Nov.) 1923

Extensive Unilateral Chorioretinal Atrophy with Recurring Deep Scleritis. B. W. Key, New York.—p. 881.
Bitemporal Contraction of Fields of Vision in Pregnancy. M. Carvill, Boston.—p. 885.
Tuberculosis of Eye: Its Diagnosis and Treatment by Tuberculin. W. E. Gamble, Chicago.—p. 892.
Plastic Operation for Palpebrofacial Deformity. L. Lehrfeld, Philadelphia.—p. 895.
Hemangioma Cavernosum of Orbit. H. L. Begle, Detroit.—p. 899.
Facoerisis. L. Mills, Los Angeles.—p. 901.
Cateract Extraction After Barraquer's Method of Phakoerisis. A. R. Ubaldo, Manila, P. I.—p. 906.
"V" Test for Astigmatism, and Astigmatic Chart in General. F. H. Verhoeff.—p. 910.
Muscle "Folder" for Strabismus. J. W. Calkins, Oakland, Calif.—p. 910.
Chronic Mild Iridocyclitis. E. E. Blaauw, Buffalo.—p. 915.

American Journal of Physiology, Baltimore

66: 215-444 (Oct. 1) 1923

*Protein and Vitamin A Content of English Walnut. H. L. Mignon, Berkeley, Calif.—p. 215.
Sources of Heat in Muscle Contraction. C. D. Snyder, Baltimore.—p. 232.
Average Epinephrin Output in Cats and Dogs. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 235.
*Function of Cerebral Ventricles. K. J. Austmann and H. K. Moorhouse, Winnipeg.—p. 267.
*Röle of Anoxemia in Causation of Tetany During Hyperpnea. S. B. Grant, Boston.—p. 274.
Relations Between Lesions of Brain Stem, Water Elimination and Body Temperature. F. T. Rogers, Dallas, Texas.
Gill Movements in a Perennibranchiate Urodela (Necturus Maculatus). Relation to Central Nervous System. G. N. Stewart, Cleveland.—p. 288.
*Quantitative Determination of Trypsin and Lipase in Gastric Contents. C. W. Luecders and O. Bergeim, Philadelphia.—p. 297.
*Effect of Asphyxia on Suprarenal Output as Demonstrated by Variations in Temperature of Brain. G. W. Crile, A. F. Rowland and S. W. Wallace, Cleveland.—p. 304.
Physiology of Reproduction in Birds. O. Riddle, Cold Spring Harbor, N. Y.
*Mineral Metabolism of Lactating and Dry Goat. C. H. Hunt, A. R. Winter, J. A. Schultz and R. C. Miller, Wooster, Ohio.
*Effect of Diuresis on Excretion of Uric Acid. J. L. Morris and H. M. Rees, Cleveland.—p. 363.
*Production of Hypoglycemia in Experimental Derangements of Liver. M. Bodansky, Galveston, Texas.—p. 375.
*Studies in Peristaltic Fatigue. V. E. Henderson, Toronto.—p. 380.
Reflex Contractions of All-or-None Character in Spinal Cat. E. L. Porter and V. W. Hart, Cleveland.—p. 391.
Antigenic Effects of Semen. J. L. McCartney, Chicago.—p. 404.
Suprarenal Discharge in Dog. J. Searles, Columbus, Ohio.—p. 408.
Reaction of Small Intestine to Sodium Bicarbonate. C. E. King and J. G. Church, Nashville.—p. 414.
Motor Reaction of Muscularis Mucosæ to Some Drugs. C. E. King and J. G. Church, Nashville.—p. 428.
Effect of Insulin on Central Nervous System. Relation to Pituitary Body. J. M. D. Olmsted and H. D. Logan, Toronto.—p. 437.

Vitamin A Content of English Walnut.—The vitamin A content of the English walnut has been investigated by Mignon in a series of feeding experiments on rats. It was found that the whole walnut contains vitamin A in such small amounts that not enough can be consumed by rats in addition to the other necessary nutrients to furnish normal growth.

Function of Cerebral Ventricles.—According to Austmann and Moorhouse the normal ventricles in the dog are largely potential cavities, the walls being mostly in apposition, except in the case of the lateral ventricles in which they are usually separated by a layer of from 2 to 4 mm. of cerebrospinal fluid between the roof and floor of the main ventricles. Demonstrable dilatation of the ventricles occurs from twenty-eight to sixty hours after obstruction of the aqueduct of Sylvius. Demonstrable dilatation of the ventricles occurs half an hour after the intravenous injection of hypertonic salt solutions. The ventricles are capable of change in size as a result of change in the volume of the brain substance.

Anoxemia Causes Tetany.—It is shown by Grant that during the alkalosis and tetany of hyperpnea there is a greater oxygen consumption of the body, as determined by the study of the respiratory exchange, than in a similar hyperpnea unaccompanied by alkalosis or tetany. The oxygen unsaturation of venous blood from the arm was greater during hyperpnea

with tetany then in hyperpnea alone in three or four experiments. Hyperpnea with alkalosis and tetany was accompanied by an increase in the oxygen saturation of the arterial blood. Inhalation of pure oxygen had no effect on the development of symptoms of tetany during hyperpnea, and hyperpnea with a mixture of equal parts of oxygen and air resulted in tetany in the same manner as though air alone had been used. It is concluded by Grant that anoxemia plays no part in the causation of tetany during hyperpnea, and that the lowering of the carbon dioxid tension of the blood under these conditions is not sufficient to cause tissue asphyxia.

Determination of Trypsin and Lipase in Gastric Contents.—Simple methods are described by Lueders and Bergeim for the determination of trypsin and lipase in gastric contents. These are capable of throwing considerable light on the phenomenon of pancreatic regurgitation, which is probably of greater importance than is generally realized.

Effect of Asphyxia on Epinephrin Output.—Crile and his associates found that asphyxia produces an increased output of epinephrin which is manifested by an increase in the temperature of the brain.

Mineral Metabolism of Dry and Lactating Goat.—The calcium and chlorin content of goat's milk is higher according to Hunt and his associates than that of cow's milk. In the early period of lactation there is a loss of calcium and phosphorus from the body of lactating goats irrespective of the nature of the feed. As the period advances these losses are decreased until a certain time, when the balances becomes positive. A goat in the early period of lactation gave the largest percentage of sodium in the milk and this decreased as the period advanced. A high fecal sodium was associated with low fecal potassium, and vice versa. In the case of dry goats, the magnesium seems to have been deflected from the milk to the urine, while the calcium and phosphorus were deflected to the feces. The sulphur, chlorin and nitrogen of the milk are deflected to the urine when the animal becomes dry.

Effect of Diuresis on Uric Acid Excretion.—Morris and Rees state that uric acid excretion is increased to a similar degree by chlorid and sulphate diuresis. There is no evidence that uric acid arises directly from increased kidney activity. The increased output is proportional to the volume of urine excreted. The variations in amount of uric acid excreted after isotonic and hypertonic salt injections indicate that its usual behavior is that of a nonthreshold substance.

Hypoglycemia in Liver Derangements.—It has been found by Bodansky that hypoglycemia occurs in severe chloroform poisoning as well as in hydraxine and phosphorus intoxications. This is especially marked in poorly nourished animals. The initial effect of severe liver damage produced by these agents is hyperglycemia. Subsequently, this effect disappears, and the blood sugar level falls to subnormal values. Death resulting from acute chloroform and phosphorus poisoning is not entirely due to functional damage of the liver as these substances are general protoplasmic poisons. On the other hand, in chronic conditions of liver injury or in conditions of acute chloroform and phosphorus intoxication in animals with damaged livers, hepatic insufficiency may be the primary cause of death. In such cases Bodansky has observed symptoms similar to those described by Mann and Magath in the case of completely hepatectomized dogs.

Peristaltic Fatigue.—Peristaltic failure is not due to a failure of the activity of the muscular coats alone. Evidence is presented by Henderson which suggests that it is due, in part at least, to fatigue of the nerve-net. Activity may be restored in most cases by barium chlorid or pilocarpin, and under certain conditions, possibly by strychnin.

American Journal of Roentgenology and Radium Therapy, New York

10: 767-852 (Oct.) 1923

Radium Treatment of Toxic Goiter with Metabolic Deduction. R. E. Loucks, Detroit.—p. 767.
Certain Biologic Principles of Radiation Therapy. S. Withers, Denver.—p. 776.
Action of Measured Radiation Doses on Carcinoma of Uterine Cervix. H. Schmitz, Chicago.—p. 781.
Results of Deep Roentgen-Ray Treatment of Gastro-Intestinal Malignancies. Detroit.—p. 793.
*Treatment of Primary Mediastinal Tumor of Lung by Roentgen Rays After Medical Resources were Exhausted. F. S. Eveleth, Concord, N. H.—p. 802.
Results with Modern Radiotherapy in Bladder Tumors. C. Coosmann, Cincinnati.—p. 804.
*Case of Tuberculosis of Symphysis Pubis. J. B. Jackson, Kalamazoo, Mich.—p. 806.
Roentgen-Ray Therapy of Chronic Prostatic Hypertrophy. J. T. Stevens, Montclair, N. J.—p. 810.
Roentgen-Ray Treatment of Thyroid. E. L. Jenkinson, Chicago.—p. 814.
Clinical Problems in Roentgen-Ray Therapy of Deep-Seated Malignancy. C. L. Martin and J. M. Martin, Dallas, Tex.—p. 818.
Biologic Reaction of Roentgen-Rays: Influence of Roentgen-Ray Treatment on Complement Content of Blood of Cancer Patients. C. F. Cori, Buffalo.—p. 830.
Tumors of Pituitary. J. T. McKinney, Roanoke, Va.—p. 835.
Importance of Roentgen-Ray Examination in Determination of Proper Method of Treatment of Pulmonary Abscess. W. H. Stewart, New York.—p. 841.
Relatively Large Foreign Body (Glass) in Orbit. P. Brown.—p. 842.
Fibrinous Bronchitis. Three Cases. F. H. Rodenbaugh, San Francisco.—p. 843.

Roentgenotherapy for Mediastinal Tumor.—Eveleth does not say what sort of tumor this was, except, that it was not caused by tuberculosis or syphilis, nor was it an aneurysm. The patient was 52 years of age. His first symptom was cough, beginning twelve years before. When Eveleth saw him, he had a markedly cachectic appearance with a history of progressive increasing weakness and loss of weight. He was very nervous from constant coughing, shortness of breath and pressure effects. Roentgen-ray treatments were begun in May, 1920, and continued for six months. Lost weight was regained, the cough ceased to annoy and in September, 1923, there was no evidence of recurrence.

Tuberculosis of Symphysis Pubis.—Jackson's patient was only 11 years of age. She had never been robust. She had had measles, chickenpox and a severe attack of whooping cough. Two years previously she had had influenza followed by pneumonia. About a year later she had a severe colitis which lasted about ten days. There was no family history of tuberculosis. The first symptom noticed was something unusual about the gait. There was difficulty about fast walking or running. Soon after this a swelling was noticed on the anterior surface of the right thigh immediately below Poupart's ligament. Roentgen-ray examination disclosed a destructive lesion of the pubic bones at the symphysis pubis. The cold abscess was aspirated. The general treatment consisted of nutrition, fresh air and sunshine. The patient recovered.

American Review of Tuberculosis, Baltimore

8: 93-194 (Oct.) 1923

Infection and Immunity in Tuberculosis. G. B. Webb, Colorado Springs.—p. 93.
*Tuberculosis Mortality in Relation to Altitude, Humidity and Density of Population. C. F. Gardiner, G. B. Webb and C. T. Ryder, Colorado Springs.—p. 112.
Alterations in Endothelial Permeability and Their Relation to Tuberculous Focus. W. F. Petersen and S. A. Levinson, Chicago.—p. 122.
*Hematologic Studies on Experimental Tuberculosis of Guinea-Pig. L. Bender and L. M. DeWitt, Chicago.—p. 138.
*Leukocyte Picture After Diagnostic Doses of Old Tuberculin. R. McBrayer, Shelby, N. C.—p. 163.
*Isolation and Cultivation of Tubercle Bacilli Protected from Light. J. Simmons, Denver.—p. 165.
*Thoracic Restriction a Most Important Adjuvant in Rest Treatment of Pulmonary Tuberculosis. S. Golden, Anglum, Mo.—p. 170.
Teaching of Tuberculosis in Medical Schools. W. C. White, Pittsburgh.—p. 178.
Teaching Normal Chest Findings to Medical Students. J. A. Myers, Minneapolis.—p. 184.
Tuberculosis Library and Its Classification. A. M. Macrum, Pittsburgh.—p. 189.

Tuberculosis Mortality in Relation to Altitude.—The high inland plateau region of the United States has a remarkably low death rate from tuberculosis, both pulmonary and nonpulmonary, as compared with lower and damper regions; and this appears to be due not only to favorable hygienic, economic and social conditions, but also, in considerable part, to climatic factors, notably altitude and dryness.

Blood Changes in Experimental Tuberculosis.—An acute infection with tuberculosis, Bender and DeWitt found, produces a characteristic blood picture in guinea-pigs in which there is a rapid loss in erythrocytes with a relatively greater

decrease in hemoglobin, a terminal leukocytosis or leukopenia, a progressive decrease in lymphocytes, a marked preterminal increase in endothelial cells and an absence of eosinophils. Chronic tuberculosis produces a blood picture, quite different from that of acute tuberculosis. It is characterized by a marked fluctuation in all elements, a relatively low hemoglobulin content of the erythrocytes, which is not progressive but shows the normal seasonal variations, and absence of any reaction in the lymphocytes, and an eosinophilia which cannot, however, be distinguished from that associated with Kurloff bodies. The coagulability of the blood in chronic tuberculosis shows slight changes from the normal, but in acute tuberculosis it is markedly retarded. The Arneth counts show a decrease in nuclear parts per hundred cells in tuberculosis, which, on the average, is greater in acute than in chronic cases, but there are individual exceptions.

Leukocyte Picture After Use of Tuberculin.—In cases positively reacting to diagnostic doses of old tuberculin, McBrayer says, there is, as a rule, an appreciable drop in the leukocyte count. Otherwise, there is no certain or consistent leukocytic change. This laboratory procedure is therefore of no appreciable value to the clinician in the interpretation of his reactions.

Cultivation of Tubercle Bacilli Protected from Light.—It seems desirable to Simmons, in experimental work with tubercle bacilli, to eliminate the possibility of accidental attenuation of the bacilli by exposure to light. Tubercle bacilli may be protected from injurious light rays if grown in red coated tubes, a precaution which is especially to be recommended in higher altitudes. By the use of red glassware for the collection of infected materials, during the treatment of the materials and the cultivation of the bacilli, strains of tubercle bacilli may be isolated and preserved without suffering any appreciable change due to the photochemical action of light.

Thoracic Restriction in Tuberculosis.—Bed-rest, coupled with thoracic restriction, or pulmonary rest, brought about by external pressure through whatever means, Golden asserts, gives the best results with the least risk or discomfort to the patient, and is unsurpassed in the treatment of pulmonary tuberculosis. External thoracic compression immobilizes lung extensibility, and thereby hastens healing. By this method toxemia is diminished. By the proper application of external thoracic compression pulmonary hemorrhage may be checked. Pain, especially of pulmonary or pleural origin, is instantly relieved by the proper use of the method. The ease of application and freedom from risks and complication make the method especially serviceable and most profitable, both to physician and patient.

Archives of Dermatology and Syphilology, Chicago

8: 597-748 (Nov.) 1923

Education of Specialist. H. Morrow, San Francisco.—p. 597.
*Dermatoscopy. J. C. Michael, Houston, Tex.—p. 603.
Fermentation Reactions of Ringworm Fungi. J. G. Hopkins and K. Iwamoto, New York.—p. 619.
Xanthoma Diabeticorum Treated with Insulin. M. F. Engman and R. S. Weiss, St. Louis.—p. 625.
Treatment of Pemphigus. R. H. Davis and W. D. Davis, St. Louis.—p. 627.
*Relation Between Serum Cholesterin and Wassermann Reaction. R. S. Weiss and A. L. Essermann, St. Louis.—p. 639.
Lymphangiectatic Hypertrophy of Vulva Occurring in Nevus Unius Lateris. N. Tobias, St. Louis.—p. 647.
*Monilethrix. Five Cases of Familial and Hereditary Type. N. Tobias, St. Louis.—p. 655.
Hyperglycemia as Etiologic Factor in Certain Dermatoses. I. L. McGlasson, San Antonio, Tex.—p. 665.
Keratoderma Punctatum. S. E. Sweitzer, Minneapolis.—p. 687.
Xanthoma Tuberosum. Report of Case. B. B. Beeson and P. G. Albrecht, Chicago.—p. 695.

Dermatoscopy.—Michael's studies in dermatoscopy were made on the capillaries in various skin diseases. His findings show that changes in the superficial skin capillaries occur in four ways: (1) dilatation without other change; (2) dilatation with special changes in the individual capillary form (aneurysmal dilatations, glomerular expansions); (3) new blood vessels formation (twiglike ramifications, intercommunicating vessels), and (4) large vascular trunks (telangiectasis).

Relation Between Serum Cholesterin and Wassermann Reaction.—A study of serial Wassermann tests with parallel cholesterin determinations on the blood serum is presented by Weiss and Essermann. In some cases, the cholesterin values roughly paralleled the degree of fixation in the Wassermann test, while in others no such correlation could be found The degree of fixation in the Wassermann test seems to be independent of the cholesterin content of the serum.

Monilethrix.—Five cases of monilethrix occurring in three generations of a family are reported by Tobias. The pathologic findings were hyperkeratosis of the follicles with intrafollicular, horny plugs, tortuous follicles and attenuated sebaceous glands. The theory that the disease is an ectodermal defect of the skin is suggested.

Boston Medical and Surgical Journal

189: 671-732 (Nov. 8) 1923

*Cause of Recurrence of Symptoms After Removal of Appendix. C. H. Lawrence, Boston.—p. 671.
Problem of Chronic Appendix. E. L. Young, Boston.—p. 673.
Recurrent Symptoms of Appendicitis. L. T. Swaim, Boston.—p. 676.

Cause of Recurrence of Symptoms After Appendectomy.—This paper is based on ninety-seven cases showing the symptoms of intermittent pain in the right lower quadrant, vomiting, nausea and disturbance of the function of the bowels over a period of a year or more. Of these, fifty patients have had either operation or roentgen-ray gastro-intestinal study, so that the intra-abdominal condition is definitely known in each of them. Of these fifty patients, twenty-one, or 42 per cent., have been operated on because of the diagnosis of chronic appendicitis. Of the twenty-one operated on, none was completely relieved by the operation. Seven of those who had the appendix removed have obtained a partial or temporary relief. Lawrence is convinced that the so-called "chronic appendix" is but a small factor in the production of the symptoms from which the patient usually seeks relief, and that appendectomy alone is but inadequate treatment of the condition. It is necessary to improve the function of the gastro-intestinal tract, so that absorption of nourishment and elimination of waste may be more efficiently performed. The first step is the regulation of the bowels. Roughage in the diet should be kept at a minimum. General exercise is of value in building up the tone, not only of the skeletal but also of the intestinal muscle. Support by brace or corset may be necessary in certain cases, but should be avoided if possible.

189: 733-796 (Nov. 15) 1923

Trustee's Remarks on Opening of Thorndike Memorial Laboratory. H. S. Brown, Boston.—p. 733.
Thorndike Memorial. J. M. Curley, Boston.—p. 734.
Problems Underlying Public Hospital Administration. W. J. Mayo, Rochester, Minn.—p. 736.
Anatomic and Roentgen-Ray Study of Optic Canal in Cases of Optic Nerve Involvement. L. E. White, Boston.—p. 741.
Medical Education Fifty Years Ago. E. H. Bradford, Boston.—p. 748.
*Requirements for an Ideal Cardiac Clinic and System of Nomenclature. Report of Committee on Cardiac Clinics.—p. 762.

Ideal Cardiac Clinic.—This report is divided into seven parts: medical organization; social service; space, equipment and facilities; record; admission and distribution of patients, standards for physical examination, and standards for treatment. Each division is further subdivided. A definite nomenclature and basis for classification is also given with the end in view of establishing uniformity of procedure in all cardiac clinics so as to facilitate study of these cases.

Illinois Medical Journal, Oak Park

44: 305-380 (Nov.) 1923

Doctor and Press Face to Face. R. J. Finnegan, Chicago.—p. 324.
Recent Developments in Radium Therapy. F. E. Simpson, Chicago.—p. 327.
Indications and Technic for Major Chest Surgery. D. W. Deal, G. T. Palmer and H. H. Cole, Springfield.—p. 329.
Congenital Pyloric Stenosis. Surgical Treatment. M. Thorek, Chicago.—p. 334.
Carcinoma of Larynx. F. J. Novak, Chicago.—p. 338.
Surgical Treatment of Chronic Intestinal Stasis. J. G. Young, Pontiac.—p. 341.
Cults. A Suggestion. E. H. Ochsner, Chicago.—p. 343.
Cholecystitis and Cholelithiasis During Pregnancy and Puerperium. H. J. Isaacs, Chicago.—p. 347.
Present Status of Deep Roentgen-Ray Therapy. B. C. Cushway, Chicago.—p. 350.

Intratracheal Injection of Oils. J. E. Lebensohn, Chicago.—p. 354.
New Technic for Removal of Tonsils with Complete and Definite Hemostasis Following Principles of General Surgery. O. M. Steffenson, Chicago.—p. 358.
Intravenous Method for Early Diagnosis of Tuberculosis in Guinea-Pig. S. A. Levinson, Chicago.—p. 360.
Problem of Nervous Patient. M. Solomon, Chicago.—p. 362.
Value of Standards of Infectivity of Venereal Diseases. F. M. Phifer and N. K. Forster, Chicago.—p. 366.
Surgical Treatment of Lung Abscess. B. D. Baird, Galesburg.—p. 370.
Mastoid Operations Under Local Anesthesia. G. W. Boot, Chicago.—p. 373.

Journal of Comparative Psychology, Baltimore

3: 327-411 (Oct.) 1923

Elimination of Short and Long Blind Alleys. A. E. White and E. C. Tolman, San Francisco.—p. 327.
Influence of Mental Activities on Vascular Processes. M. E. Day, Baltimore.—p. 333.
Simple and Accurate Method of Recording Speech. K. Dunlap, Baltimore.—p. 379.
Central Inhibition in Albino Rat. L. T. Spencer, New Haven, Conn.—p. 389.

Journal of Experimental Medicine, Baltimore

38: 327-485 (Oct.) 1923

Botulism. Manner in Which Toxin of Clostridium Botulinum Acts on the Body. II. Effect on Voluntary Nervous System. E. C. Dickson and E. Shevky, San Francisco.—p. 327.
Studies Based on Malignant Tumor of Rabbit: V. Metastases. L. Pearce and W. H. Brown, New York.—p. 347.
*Id. V. Metastases. Part 2. Description of Lesions. L. Pearce and W. H. Brown, New York.—p. 367.
Id. V. Metastases. Part 3. Factors That Influence Occurrence and Distribution. W. H. Brown and L. Pearce, New York.—p. 385.
*Method for Physiologic Study of Tissues in Vitro. A. Carrel, New York.—p. 407.
Antagonistic Growth Principles of Serum and Their Relation to Old Age. A. Carrel and A. H. Ebeling, New York.—p. 419.
*Studies on Nasopharyngeal Secretions from Patients with Common Colds. P. K. Olitsky and J. E. McCartney, New York.—p. 427.
*Method for Determination of Specific Gravity of Red Blood Cells. P. Reznikoff, Boston.—p. 441.
*Lung Volume in Heart Disease. C. A. L. Binger, New York.—p. 445.
*Chemical Changes in Blood of Dog After Obstruction of Esophagus and Cardiac End of Stomach. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 477.

Malignant Tumor Metastases.—As part of a general investigation of a malignant tumor of the rabbit, the phenomena of metastasis were studied by Pearce and Brown in a group of 191 animals. It was found that while the picture presented by different animals varied greatly, there was a remarkable degree of uniformity in the character of the lesions in a given organ or tissue and in the circumstances under which metastases occurred in a given location. It was thus possible to establish a relationship between the distribution of metastases and the function of animal resistance. The conclusion was reached that the peculiarities of metastatic involvement displayed by individual animals were not entirely attributable to chance distribution of tumor cells but that they were founded very largely on constitutional differences and that the picture presented in any given instance represented an expression of the interaction between tumor and host, the character and force of which were indicated by the nature and distribution of the lesions or by the organs and tissues affected.

Study of Tissues in Vitro.—A method has been developed by Carrel which allows the continuous growth of pure strains of fibroblasts, epithelium and leukocytes in a medium which undergoes but slight spontaneous deterioration. The principle of the method is to leave the tissues undisturbed while the medium is changed. This was realized by special containers allowing the change of the medium without bacterial contamination and by the simultaneous use of a solid and a fluid medium. The method is used for the study of the morphologic and dynamic changes occurring in tissues under the influence of chemical and physical factors.

Nasopharyngeal Secretions in Common Colds.—The transmission of a clinical condition similar to typical, infectious common cold from man to man with the filtered nasopharyngeal washings of early cases of the disease, Olitzky and McCartney state, indicate that the incitant is filterable, thus confirming the earlier observations of Kruse and Foster.

Determination of Specific Gravity of Red Cells.—The method employed by Reznikoff depends on the use of two miscible liquids of different specific gravities, into which the sedimented corpuscles can be dropped. By varying the proportions of the liquids, a medium can be obtained in which the cells neither sink nor rise but remain suspended. The specific gravity of the red blood cells is the same as that of the mixture. Reznikoff uses a mixture of benzyl benzoate and cotton seed oil.

Lung Volume in Heart Disease.—The lung volumes in a group of individuals suffering from chronic cardiac disease have been studied by Binger by a method which is applicable to patients suffering from dyspnea. In a number of instances the same patients were investigated during various stages of decompensation and compensation. The values found have been compared with those determined in a group of normal subjects. The significance of these changes is discussed and an explanation offered for the occurrence of a residual air of normal volume in patients with heart disease. It results from a combination of two tendencies working in opposite directions: one to increase the residual air—stiffness of the lungs (Lungenstarre); the other to decrease it—distended capillaries (Lungenschwellung), edema, round cell infiltration.

Blood Changes After Obstruction of Esophagus and Cardia.—Ligation of the cardiac end of the stomach or of the esophagus in ten dogs produced a severe toxemia, and rapid death. In seven of the animals there occurred a marked rise in the total nonprotein nitrogen and urea nitrogen of the blood. The dogs living longest with cardiac obstruction showed a fall in blood chlorids and a rise in the carbon dioxid combining power of the plasma. All the dogs with an obstruction of the esophagus showed a fall in blood chlorids. Control animals subjected to other types of abdominal operations showed no significant changes in the blood.

Journal of Infectious Diseases, Chicago

33: 369-476 (Nov.) 1923

*Intestinal Spirochetes. L. W. Parr, Chicago.—p. 369.
Germination of Spores of B. Botulinus in Collodion Sacs in Abdomen of Guinea-Pigs and Rabbits. G. E. Coleman, Santa Barbara, Calif.—p. 384.
Bacillus Pestis. R. D'Aunoy, New Orleans.—p. 391.
*The Common Cold. E. O. Jordan, J. F. Norton and W. B. Sharp.—p. 416.
*Effect of Kaolin on Intestinal Flora in Normal and Pathologic Conditions. L. H. Braafladt, Chicago.—p. 434.
*II. Chemotherapy of Experimental Typhoid Carrier Condition. T. D. Beckwith, Berkeley, Calif.—p. 457.
Modification of Klein Medium for Isolation of Diphtheria Bacillus. E. Megrail, Cleveland.—p. 466.
Hydrogen-ion Studies. IX. Preparation of Specific Precipitin as Dry Powder. E. F. Hirsch, Chicago.—p. 470.

Intestinal Spirochetes.—Intestinal spirochetes were found by Parr in approximately a third of all residents examined. They seem to enter into severe intestinal disorders in a secondary rôle in occasional cases. While the degree of infestation of healthy persons is slight, amounting usually to less than a twentieth of the entire microbial flora, there appear to be those who always excrete some spirochetes in every stool. On the other hand, there appear to be those who never harbor the intestinal spirochete. A carbohydrate diet appears to discourage the presence of intestinal spirochetes and may even cause them to disappear temporarily. The ingestion of acidophilus milk has the same effect. Protein feeding may favor the presence of spirochetes if it does not produce a condition of such metabolic unbalance as to suppress them. Fasting tends to diminish the number of intestinal spirochetes found in the stools. The administration of calomel failed to drive out the spirochetes or in any significant way to affect their abundance. All animal inoculation work has been uniformly negative.

The Common Cold.—Sixteen hundred students from Chicago, California, Pasadena and Galveston, Texas, furnished the data reported on by Jordan, Norton and Sharp. The results of their laboratory investigations correspond, in the main, with those obtained by other investigators. No one organism or group of organisms has been shown to predominate during colds. The question of a specific infectious virus is, therefore, still open. The common cold generally starts in the nose. About one third of these colds extend to the chest. The sequence of the local symptoms in colds is not uniform. There is no definite correlation between type,

duration, severity and frequency of colds, except that infrequent colds tend to run a milder course. In the California and Galveston groups, colds, while of about the same yearly frequency as in the Chicago group, tended to be concentrated into a shorter period, were of somewhat less severity and of somewhat shorter duration. In general, however, the differences in the three groups were less than might be expected on the basis of climatic conditions alone. Of the persons from whom data were gathered, 64 per cent. believed that their colds were induced by some strain on the heat regulating mechanism of the body. Possible contact with others having colds was stated by 22 per cent. of persons questioned to have perceded their own colds. "Resistance building" practices apparently had little effect on the frequency of colds. The data do not show that nose or throat operations result in a marked reduction of the frequency of colds. Whether or not a cold is the result of a specific infectious process is unknown. It is clear, however, that outside influences, particularly those involving chilling of the body, may serve to induce a cold, even if these influences cannot be regarded as the most important etiologic factors.

Effect of Kaolin on Intestinal Flora.—A study of 100 consecutive cases of Asiatic cholera was made by Braafladt during an epidemic which swept China in 1919. Kaolin was used with success. Kaolin does not act as an antiseptic, but it "carries down with it" large numbers of bacteria in fluid mediums when mixed with them and kept in motion for two or three hours. Whether this is a purely mechanical action, or whether koalin has some specific attraction for bacteria, is not clear. When not kept in motion it does not reduce the number of bacteria to any extent. It combines with toxins and toxic products of *Vib. cholerae, B. dysenteriae* (Shiga), *B. diphtheriae, B. botulinus, B. typhosus, B. paratyphosus* B, and, perhaps, of putrefactive and proteolytic bacteria, rendering them harmless. When taken by mouth over a period of from ten to thirty days, in sufficient quantities (1 or 2 ounces [30 to 60 gm.] per day for a man), it changes the intestinal flora of rats, dogs and men from a predominantly proteolytic type to an aciduric one. It practically eliminates *B. welchii* from the stool; it does not upset digestion. It has been used with success in Asiatic cholera, bacillary dysentery, chronic ulcerative colitis and acute enteritis.

Chemotherapy of Experimental Typhoid Carrier Condition.—A series of experiments was carried out by Beckwith for the purpose of determining the possible effectiveness of certain compounds for clearing up experimentally produced rabbit carriers of *B. typhosus*. In these were included: (1) arsphenamin and neo-arsphenamin, (2) iodin, (3) acid dyestuffs. None of these was effective for the purpose sought. Certain temporary changes in the growth habit of *B. typhosus* may be encountered as a result of intravenous injection of particular dyestuffs.

Journal of Radiology, Omaha

4: 343-380 (Oct.) 1923

Radiation Dosage. F. C. Wood, New York.—p. 343.
Bone Tumors, Benign Bone Cysts Due to Central Osteitis Fibrosa of Unhealed Latent Type. J. C. Bloodgood, Baltimore.—p. 345.
Pericarditis with Effusion. F. M. Hodges, Richmond, Va.—p. 351.
Hoelfelder Technic in Deep Therapy. L. S. Goin, Peoria, Ill.—p. 354.
System of Roentgen-Ray Anthropometry (The Skull). A. J. Pacini, Chicago.—p. 358.
Objections to Use of "One Lethal Dose" Method in Malignancy. C. H. Nims, Hot Springs, Ark.—p. 364.

Kansas Medical Society Journal, Topeka

23: 235-268 (Sept.) 1923

Treatment of Eclampsia. H. M. Glover, Newton.—p. 235.
Unilateral Destruction of Kidney. A. D. Gray, Topeka.—p. 238.
Arterial Hypertension. R. H. Major, Atchison.—p. 241.
Cerebrospinal Fluid in Acute Anterior Poliomyelitis. W. C. Menninger, Topeka.—p. 248.
Medical Ethics and Etiquette. F. M. Wiley, Fredonia.—p. 251.

23: 303-334 (Nov.) 1923

Experience with One Hundred Consecutive Fractures. D. E. Broderick, Wichita.—p. 303.
Treatment of Acne. H. G. Collins, Topeka.—p. 307.
Hospital Ethics. E. S. Edgerton, Wichita.—p. 309.
Poliomyelitis Epidemic in Topeka. E. G. Brown, Topeka.—p. 310.
Laboratory Methods. L. G. Heins, Abilene.—p. 312.
Cause or Causes of Hypertension. A. C. Frack, Fredonia.—p. 315.

Laryngoscope, St. Louis

33: 731-810 (Oct.) 1923

Pathology of Deafmutism. J. S. Fraser, Glasgow, Scotland.—p. 731.
Plastic Labyrinthitis, Probably of Congenital Syphilitic Origin. W. G. Shemeley, Jr., Philadelphia.—p. 781.
Surgical Emphysema Following Tonsillectomy. S. Stein, New York.—p. 785.
Case of Laryngeal Stenosis. E. M. Josephson, New York.—p. 790.
Roentgen-Ray Therapy in Chronic Tonsillitis. J. W. Babcock, New York.—p. 796.
Deductions from Examination of One Thousand Adult Throats. S. R. Skillern, Jr., Philadelphia.—p. 800.
Treatment of Acute and Chronic Dacryocystitis with Silver Cannulas. J. F. Callahan, Brockton, Mass.—p. 805.

Maine Medical Association Journal, Portland

14: 49-70 (Oct.) 1923

Cervical Lacerations and Leukorrhea. A. P. Leighton, Portland.—p. 49.
Septic Ear. W. D. Rankin, Woodstock, N. B.—p. 58.
Health Examination. H. Emerson.—p. 62.

Mental Hygiene, Albany

7: 673-896 (Oct.) 1923

Relation of School to Mental Health of Average Child. J. Taft.—p. 673.
Cadet Problems. H. N. Kerns, West Point.—p. 688.
Psycho-Sexuality of College Graduate Men. M. W. Peck and F. L. Wells, Boston.—p. 697.
Case Studies in Mental Problems of Later Adolescence. Mental Hygiene of College Student. D. A. Laird, New Haven.—p. 715.
Sex Education in Light of Analytic Experience. C. P. Oberndorf, New York.—p. 734.
Methods of Recreational Adjustment as Form of Social Case Treatment. C. Wannamaker, Chicago.—p. 744.
Psychiatric Point of View in Social Work. G. Marcus, New York.—p. 755.
Mentally Retarded Child in Public Schools. C. S. Berry, Detroit.—p. 762.
Mental Health of 581 Offspring of Nonpsychotic Parents.—p. 770.
Outlook for Vocational Guidance in Great Britain. D. Fryer.—p. 779.
Histories of 79 Feebleminded Girls Under Supervision. E. Greene, New York.—p. 785.
Year's Progress in New York State in Care of Mental Defectives. S. Brown, New York.—p. 796.
Social Service in Relation to Patients in Boston State Hospital Not Over Twenty-Five Years of Age at First Admission. K. E. Howland, Traverse City, Mich.—p. 804.

Military Surgeon, Washington, D. C.

53: 313-410 (Oct.) 1923

What United States Public Health Service is Doing to Prevent Spread of Leprosy in Continental United States. E. R. Marshall.—p. 313.
Uniform Nomenclature for Blood Counting. R. E. Scott and R. W. French.—p. 321.
Immunity Following Smallpox Vaccination. S. J. P. Leake.—p. 328.
Tuberculous Exservice Man and Medical Reserve Corps Officer. M. R. McBrayer.—p. 337.
Report of Observation Trip in Germany, Denmark and England. M. A. Reasoner.—p. 344.
Is Chemical Warfare More Inhuman Than Gunfire. A. P. Francine.—p. 365.
Influence of Endocrines on Growth and Development. W. C. Porter. p. 371.

New York State Journal of Medicine

23: 435-474 (Nov.) 1923

Inflammatory Pseudotumor of Orbit. W. L. Benedict and M. S. Knight, Rochester, Minn.—p. 435.
Results of Three Hundred and Nine Goiter Operations. G. E. Beilby, Albany.—p. 440.
*Diagnosis of Carcinoma of Rectum. F. C. Yeomans, New York.—p. 443.
Limitations in Radiotherapy of Cancer. F. C. Wood, New York.—p. 446.
Neurology in Greater New York. C. L. Dana and T. K. Davis, New York.—p. 449.
*Analysis of Five Hundred Deaths from Diphtheria Occurring in New York State (Exclusive of New York City) in 1922. B. E. Roberts, Albany.—p. 452.

Diagnosis of Carcinoma of Rectum.—Yeomans reports on 108 cases of carcinoma of the rectum or rectosigmoid. The tumor was palpable in ninety-seven cases so that in only eleven was the protoscope essential to determine the presence of a growth at a higher level. The tumor involved the anterior rectal wall in thirty-nine cases; the posterial wall in thirty-two cases; was lateral in seven and annular in thirty cases. The growth felt movable in sixty cases and fixed in forty-eight. In the majority of cases the neoplasm was ulcerated, and in ten cases it had infiltrated adjacent organs. Biopsy was performed in thirty-two cases. The diagnosis

was: adenocarcinoma in twenty-four cases, epithelioma in four, colloid carcinoma in two cases, and malignant adenomatous polyp and angiosarcoma, each one case.

How to Reduce Diphtheria Mortality.—The analysis made by Roberts tends to confirm the conclusion of previous observers that the death rate is practically nil when adequate treatment is given on the first day of the disease, with proper surgical measures, when indicated, and with good care during the course of the illness and convalescence. Roberts urges that the intravenous method of administration of antitoxin should be more widely used, especially in severe cases or in moderate cases seen later than the second day of the disease. In the 500 deaths considered in this analysis, the intravenous method was not known to have been used on the first day of the disease in a single instance. When the intravenous method is not used, antitoxin should be given intramuscularly. The subcutaneous method should be used only for prophylactic doses given to exposed persons. Antitoxin should immediately be given in adequate dosage in all cases in which there is any clinical evidence of diphtheria. In the present series, delay in administering antitoxin was definitely a factor in the cause of death in at least eighty-five cases. In fifty cases in which no antitoxin was given, failure to make a diagnosis was a factor in at least nineteen instances. The analysis shows that antitoxin was given on more than one day in 33 per cent. of the cases in which it was known on how many days antitoxin was given. Proper surgical treatment in laryngeal cases is extremely important. Of the 110 deaths from respiratory obstruction in these cases, fifty-eight had no surgical treatment of any sort. Roberts urges that greater attention be paid to the care of patients during convalescence. This need is borne out by the fact that cardiac involvement was stated to have played a part in nearly one half of all the deaths, and that in twenty-four of these cardiac cases failure to keep the patient at rest was definitely mentioned as the immediate factor in the fatal outcome.

Southwestern Medicine, Phoenix, Ariz.

7: 401-452 (Nov.) 1923

*Granuloma Inguineale: Report of Case. R. T. Frank, Denver.—p. 401.
Thyroid and Psychiatry. K. A. Menninger, Topeka, Kan.—p. 403.
Postnasal Tumors; Fibroma. F. P. Schuster, El Paso.—p. 407.
Focal Infections in Relation to Abnormalities of Vision. W. E. Scarborough, Albuquerque, N. M.—p. 411.
Splenic Anemia. O. Egbert and B. F. Stevens, El Paso.—p. 413.
*Congenital Absence of Anus and Rectum. H. A. Miller, Clovis, N. M. —p. 416.
Case of Hypertension Due to Endocrin Disturbance. S. D. Swope, El Paso.—p. 417.

Granuloma Inguinale.—The case reported by Frank was unrecognized for three years and the patient was first operated on for carcinoma and then treated for syphilis. A clinical diagnosis was readily made from the gross appearance—a warty, nodular, superficial, granular, bright, red lesion of the vulva and vagina. The histologic, serologic and bacteriologic tests excluded syphilis, tuberculosis and carcinoma. The effect of treatment confirmed the diagnosis.

Congenital Absence of Anus and Rectum.—Not being able to find the blind pouch of the rectum in the usual way in his case, Miller did a left colostomy. A long blunt curved forcep was then inserted in the colostomy wound toward the caudad end of the intestine. There was found to be quite a spacious blind pouch; with a finger in the lower wound, the forcep was pushed forward, and hugging the hollow of the sacrum the pouch was delivered in the wound below and sutured to the skin margin and opened. About two months later, the baby was returned with the history that the colostomy wound had closed in about four weeks. The anus was discharging bowel contents, but the instructions about gentle dilatation had not been carried out, hence the opening was too small. It was dilated by forceps and finger and a firm rubber tube was inserted about 1½ inches and sutured to the skin with instruction to irrigate freely with sterile saline and leave in place for at least three weeks. There is now no incontinence.

Surgery, Gynecology and Obstetrics, Chicago

37: 579-528 (Nov.) 1923

*End-Results in Nearly Three Hundred Cases in Which the Gallbladder was Drained, Not Removed. H. L. Darner, Baltimore.—p. 579.
Treatment of Duodenal Fistula. Report of Case. A. L. Cameron, Minneapolis.—p. 599.
*Usefulness of Duodenal Tube. M. Finkelstein, Winnipeg, Manitoba. —p. 607.
Actinomycosis of Head and Neck. G. B. New and F. A. Figi, Rochester, Minn.—p. 617.
Radium Therapy in Carcinoma of Rectum. H. A. Kelly and G. E. Ward, Baltimore.—p. 626.
Tuberculous Tenosynovitis of Hand. Report of Fourteen Cases. A. B. Kanavel, Chicago.—p. 635.
Adenomyoma Involving Signoid. Five Cases. E. S. Judd and G. S. Foulds, Rochester, Minn.—p. 648.
Postoperative Renal Hemorrhage. A. Jianu, Bucarest, Roumania.—p. 653.
*Pathology and Treatment of Chronic Leukorrhea. A. H. Curtis, Chicago.—p. 657.
Fifty-Nine Breech Presentations Treated by Prophylactic External Version. G. H. Ryder, New York.—p. 660.
Retroperitoneal Operation for Subphrenic Abscess. Report of Two Cases. C. Nather, Vienna, and E. W. A. Ochsner, Chicago.—p. 665.
Open Operation for Congenital Dislocation of Hip. H. P. H. Galloway, Winnipeg, Manitoba.—p. 674.
Reconstruction of Urethra After Complete Loss, Complicating an Extensive Vesicovaginal Fistula. G. G. Ward, New York.—p. 678.
Cancer of Upper Jaw; Its Surgical Treatment. W. S. Schley, New York.—p. 683.
Major Urologic Surgery Under Sacral and Parasacral Anesthesia. O. S. Lowsley, New York.—p. 688.
Three Aids to Render Conduct of Labor More Scientific. J. B. DeLee, Chicago.—p. 693.
Use of Fat to Prevent Sutures Cutting Into Parenchymatous Organs by Underpinning. D. Beer, New York.—p. 694.
Intraperitoneal Hemorrhage in New-Born Following Thies' Method of Resuscitation. M. P. Rucker and S. W. Budd, Richmond, Va.—p. 695.

Drainage of Gallbladder.—Darner believes that drainage of the gallbladder is the safer and easier procedure in the hands of the average surgeon and in the average case. In a second operation should become necessary, cholecystectomy should be considered seriously. No hard and fast rules can be laid down. Each case must be considered by itself.

Usefulness of Duodenal Tube.—Five hundred cases were studied by Kinkelstein and he concludes that duodenal drainage is a helpful clinical method in the diagnosis and treatment of early diseases of the biliary system. Cases of suspected gallbladder lesions that have come to operation have had the preoperative duodenal drainage diagnosis definitely confirmed. This method presents an important means of determining the presence of parasites and their ova or focal infection of the biliary tract, conditions which may be of the greatest diagnostic and therapeutic value in obscure conditions, such as arthritis, neuritis, etc. Therapeutically, the method has proved to be extremely valuable in the early stages of catarrh and infection of the biliary tract, biliary stasis, chronic biliousness, and severe migraine. The duodenal tube cannot, by any manner or means, supplant surgery, when gross pathologic lesions exist, but when surgical interference is contraindicated, because of a heart or kidney complication, the tube offers an alternative which in not a few cases affords much relief. In cholecystectomized patients who still complain of trouble in the right hypochondrium, the tube has been useful in clearing up the stasis and infection, which could not be treated surgically.

Treatment of Chronic Leukorrhea.—Available measures in the control of chronic leukorrhea, Curtis says, consist in eradication of gland infection in the vicinity of the urethra, dilatation of cervical strictures, and destruction of hyperplastic glandular tissues of the cervix. Whether the latter is to be accomplished by endocervix removal or through the use of the radium should depend on the character of the pathology encountered, modified by the experience of the surgeon in charge. Destruction of infected Skene's ducts and urethral glands, together with thorough dilatation and radium treatment of the cervix, has been followed by recovery from chronic leukorrhea in 87 per cent. of 104 patients.

Tennessee State Medical Association Journal, Nashville

16: 197-238 (Oct.) 1923

Experimental Work with Iletin (Insulin) in Treatment of Diabetes. Report of Cases. H. Litterer and S. R. Teachout, Nashville.—p. 197.
Management of Diabetes Mellitus. Treatment with Insulin. R. C. Derivaux, Nashville.—p. 203.
Organic Syphilis of Stomach. J. D. Lester, Nashville.—p. 207.
Wassermann—Fast Syphilis. B. W. Fontaine, Memphis.—p. 214.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

28: 129-160 (Oct.) 1923

Treatment of Actinomycosis by Roentgen Rays. Report of Nine Cases. C. P. G. Wakeley.—p. 129.
Cauterization of Adhesions in Artificial Pneumothorax Treatment of Pulmonary Tuberculosis Under Thoracopic Control. H. C. Jacobaeus.—p. 136.
Radiography of Fetus in Utero. T. I. Candy.—p. 146.
Radium Dermatitis. M. S. Thomson and C. P. G. Wakeley.—p. 153.

British Journal of Ophthalmology, London

7: 449-496 (Oct.) 1923

Blood Pressure in Eye; Relation to Chamber Pressure. P. Smith.—p. 449.
Pectinate Ligament in Relation to Chronic Glaucoma. H. Herbert.—p. 469.

British Medical Journal, London

2: 847-906 (Nov. 10) 1923

Habits (Ecology) of Tumors. J. Bland-Sutton.—p. 847.
Arsenical Pigmentation of Mouth and Skin. R. Stockman.—p. 852.
*Rationale of Parathyroid Therapy. H. W. C. Vines.—p. 854.
*Epidemic Hiccup and Lethargic Encephalitis. W. R. Brain.—p. 856.
Summer Diarrhea. D. Nabarro.—p. 857.
*After Results of Abdominal Tuberculosis in Children. H. T. Ashby.—p. 863.
Treatment of Tuberculous Cervical Adenitis by Radium. E. S. Molyneux.—p. 865.
Reaction of Blood in Children. R. Conway-Verney.—p. 866.
Labyrinth Deafness. D. McKenzie.—p. 867.
Retrobulbar Neuritis of Nasal Origin. E. D. D. Davis.—p. 873.
Canfield's Operation on Antrum. J. Dundas-Grant.—p. 874.
Butyn as Local Anesthetic in Nose and Throat Practice. W. Hill.—p. 876.
Hydrocephalus Following Spina Bifida. A. P. Birtwistle.—p. 877.
Sporadic Case of Myoclonus Multiplex. J. C. Ramsay.—p. 878.
Facial Paralysis Following Herpes Facialis. J. W. Tomb.—p. 878.

Parathyroid Therapy.—Parathyroid therapy, as stated by Vines, is considered a means of reestablishing the normal endocrine balance of the body, which infection has disturbed. Emphasis is laid on the point that the balance between sympathetic and parasympathetic must be brought back to the normal level; adequate resistance to disease is not a function either of the sympathetic system or of the parasympathetic system, but of the equilibrium between them.

Relation Between Epidemic Hiccup and Lethargic Encephalitis.—After suffering for a month from intermittent brief attacks of hiccup, Brain's patient developed a typical though mild attack of the lethargic form of encephalitis with ocular palsies. Two months later, after further brief attacks of hiccup, an attack of hiccup developed which lasted eight days, and for which the patient was admitted to hospital. On admission she exhibited cranial nerve palsies, hiccup, and also myoclonic movements of the arms and abdominal wall. This, in Brain's opinion, would seem to establish finally the relationship between epidemic hiccup and epidemic encephalitis.

After Results of Abdominal Tuberculosis in Children.—Ashby has followed up 250 cases of abdominal tuberculosis in childhood for a number of years, and has analyzed results. Many patients are apparently cured for a time, but have a relapse later on. The outlook is virtually hopeless under the age of 1 year, and not much better under the age of 2 years. However, as the age increases, the outlook improves considerably. The more that can be felt in the abdomen, the worse, as a rule, is the outlook. The type with ascites does better on the whole than the other types, and this class of case often responds well to operative treatment. The after-histories of children who have had abdominal tuberculosis and who have kept well for some years are good, even though there are still enlarged calcareous glands felt in the abdomen. Of the 250 cases analyzed a cure was effected in 56 per cent.

Journal of Laryngology and Otology, Edinburgh

38: 565-620 (Nov.) 1923

Nasopharyngeal Fibroma. P. G. Goldsmith.—p. 565.
Two Cases of Chronic Hyperplasia of Upper Jaw: Relationship to Other Osseous Tumors and to Otosclerosis. D. Guthrie.—p. 575.
Statistical Tables for 1922, from Ear and Throat Department of Royal Infirmary, Edinburgh. J. M. Gibson and A. G. Brough.—p. 580.

Journal of Physiology, London

58: 1-110 (Oct.) 1923

Physiology of Plain Muscle. I. Effect of Alteration of Hydrogen-Ion Concentration. S. W. F. Underhill.—p. 1.
Isolation of Different Parts of Digestive Tract as Method of Studying Its Movements. B. P. Babkin and E. I. Sinelnikov.—p. 15.
*Absorption of Insulin From Stomach. L. B. Winter.—p. 18.
Physiology of Plain Muscle. II. Oxygen Usage and Relation of Tonus. C. L. Evans.—p. 22.
*Does Insulin Influence Glycogenic Function of Perfused Liver of Turtle? E. C. Noble and J. J. R. Macleod.—p. 33.
Rate of Recovery of Nerves in Asphyxia. S. Cooper.—p. 41.
Antidromic Action. II. Stimulation of Peripheral Nerves of Cat's Hind Foot. J. N. Langley.—p. 49.
*Vascular Dilatation Caused by Sympathetic and Course of Vasomotor Nerves. J. N. Langley.—p. 70.
*Ovarian Factor Concerned in Occurrence of Oestrus. F. H. A. Marshall and W. A. Wood.—p. 74.
*Regulation of Respiration. T. Lumsden.—p. 81.
Ergometer Adaptable for Either Hand or Foot Movements. E. P. Cathcart, G. M. Wishart and J. McCall.—p. 92.
*Nerve Regeneration from One Into Other of Two Rats United in Siamese Pairs. B. Morpurgo.—p. 98.
Comparison Between Colorimetric and Electrometric Methods of Determining Hydrogen Ion Concentration of Blood. R. Conway-Verney and L. E. Bayliss.—p. 101.
*Possible Relation Between Pancreas and Parathyroids. L. B. Winter and W. Smith.—p. 108.

Absorption of Insulin from Stomach.—The activity of the crude insulin used by Winter in his experiments was such that the subcutaneous injection of 40 mg. into a rabbit weighing 1.5 kg. caused convulsions in two and a half hours. The insulin was dissolved in from 15 to 25 c.c. of 20 per cent. alcohol. The blood sugar fell to a low level. It was evident, therefore that absorption of the insulin must have taken place from the somach. In those cases in which convulsions occurred, no difficulty was experienced in recovering the animals with glucose. In experiments with smaller quantites of insulin, 60 mg., an appreciable effect was noted, and in one experiment half this amount reduced the blood sugar to 0.04 per cent. Convulsions did not actually occur and the animal recovered without the aid of glucose. A delayed action following the administration of insulin per os has not been noticed. That the alcohol was responsible for the absorption of the insulin was shown by a control experiment in which 60 mg. of insulin was given per os, dissolved in physiologic solution of sodium chlorid. No effect on the blood sugar was observed. Another experiment in which the same amount was given per os, dissolved in twentieth normal sodium hydrate solution, gave negative results.

Does Insulin Influence Glycogenic Function of Liver.—The conclusion reached by Noble and Macleod is that the rate of postmortem glycogenolysis in excised turtle liver is not influenced by the presence of varying concentrations of insulin at ranges of p_H between 7.0 and 7.4.

Vascular Dilatation.—The results of experiments with cats have convinced Langley that periarterial section in man, so far as it relieves peripheral vasoconstriction, in all probability does not do so by severing nerve fibers running with the arteries to the periphery.

Ovarian Factor Concerned in Occurrence of Estruation.—Experiments performed by Marshall and Wood on dogs show that if all the graafian follicles visible on the surface of the ovary are cauterized, and therefore probably destroyed, a short time before a heat period is due, then the period is missed and there is a prolonged period of anestruation which may extend over the duration of two or more normal estrual cycles. That the uterus does not undergo atrophy is shown by the subsequent reappearance of heat and the resumption of normality. If the follicles are cut into without being destroyed, heat is not postponed or only slightly so. The general conclusions reached are that preestruation and estruation are due to an internal secretion of the ovary produced by the follicles during the preinseminal stage of development. The secretion which is responsible for uterine and mammary hypertrophy during pregnancy and pseudopregnancy is different, and is produced by the corpus luteum. There is also an ovarian internal secretion which is responsible for maintaining the normal nutrition of the uterus and preventing it from lipsing into an infantile or atrophic condition, and this is

produced by the smaller follicles or by the interstitial cells. These three ovarian secretions probably differ from one another qualitatively as well as quantitatively.

Regulation of Respiration.—Lumsden asserts that the factors which regulate the three lower respiratory centers are partly chemical (lack of oxygen and excess of carbon dioxid) and partly nervous (vagal and trigeminal impulses mainly).

Nerve Regeneration in United Rats.—If two rats are united parabiotically, no nervous connections are formed between them. Experiments have been carried out by Morpurgo in order to determine whether this was due to the incapacity of the nerves of one individual to grow into the other. For this purpose, artificial nervous connecitons were made in Siamese pairs of rats. The results indicate that nervous connections are formed. For instance, the sciatic trunk of the left hand rat sends branches both into the leg of the right hand rat and into that of the left hand one; a nerve path in the shape of a Y turned upside down is formed which, from the legs of both rats, reaches the spinal cord of the left hand rat. The regeneration of the nerve endings takes place in both rats. Muscle spindles and neurotendinous organs also regenerate.

Relation Between Pancreas and Parathyroids.—The fact that ephinephrin and thyroid extract have been found to raise the blood sugar of rabbits in such a manner as to maintain the normal ratio, copper reducing to polarimetric value suggested to Winter and Smith that the parathyroids might exercise some function on the carbohydrate metabolism in conjunction with another ductless gland. Injection of parathyroid alone was found to be without appreciable effect on the blood sugar, but injection of parathyroid extract into animals suffering from hypoglycemic convulsions due to insulin, had a very marked effect. The animals quickly became rigid and died in a few minutes.

Journal of Tropical Medicine and Hygiene, London

26: 313-324 (Oct. 15) 1923

Withdrawal of Fluid from Chest by Trocar and Cannula and Syphonage Without Excision of Ribs. J. Cantlie.—p. 313.

Lancet, London

2: 963-1016 (Nov. 3) 1923

*Principles of Symptomatology. I. J. Mackenzie.—p. 963.
*Simulation of Active Pulmonary Tuberculosis by Painless Maxillary Sinusitis. A. L. Yates.—p. 968.
*Incidence of Malignant Disease in Apparently Benign Enlargement of Prostate. R. H. J. Swan.—p. 971.
Applications of Nomography to Medicine. W. A. M. Smart.—p. 974.
*Case of Exemphalos. F. Blake.—p. 976.
*Case of Osteo-Arthritis in Childhood. P. Weatherbe.—p. 976.

Principles of Symptomatology.—Believing that a great mass of symptoms are produced by the disturbance of normal reflexes and that a great group of symptoms is the result of an increase or decrease of functional activity, Mackenzie and his associates are now studying what is meant by stimulation and inhibition. This has led to a long and intricate inquiry and has exposed many avenues for investigation. The principle of the reflex arc is here discussed at length and a new concept—the law of fluctuation—is mentioned.

Simulation of Pulmonary Tuberculosis by Maxillary Sinusitis.—Yates discusses the cases of patients, who, while exhibiting all the symptoms of pulmonary tuberculosis, are in fact suffering from sinusitis of such a nature that no localizing symptoms are present. Many of these cases had been diagnosed as pulmonary tuberculosis. They generally presented not only the symptoms of tuberculosis—namely, cough, often waking the patient at night; morning sputum, yellow or green in color, and often nummular; progressive wasting, a rise of temperature in the evening and after exercise—but also certain physical signs in the chest due apparently to bronchitis, which, while not typical of tuberculosis were sufficient to render it extremely difficult to negative the diagnosis of pulmonary tuberculosis; the fact of the absence of tubercle bacilli in the sputum does not, apparently, negative the presence of pulmonary tuberculosis.

Incidence of Malignant Disease of Prostate.—In a series of 678 prostates removed by operation and submitted for pathologic examination, no less than 174, or 25.7 per cent., were definitely malignant, while fifty-eight others, or 8.6 per cent., are classified as borderline or precancerous cases; 443, or 65.3 per cent., were innocent (adenomatous), and three, or 0.4 per cent., were tuberculous. Swan himself has had four cases out of twenty-eight consecutive prostatectomies. These cases emphasize the comparative frequency with which carcinoma may exist as an undetected focus in a prostate which is the seat of senile enlargement. In the breast, in the tongue, the stomach and the intestine, as well as in other organs, carcinoma may occur in areas which have been the seat of simple chronic inflammation or of ulceration. Swan wonders whether the same sequence may not occur in the prostate, and thus carcinoma commence as a focus in a gland already the seat of benign enlargement.

Exomphalos.—In Blake's case there was a defect in the middle line of the body from the umbilicus to the sternum, and the liver, gallbladder, jejunum, ileum, ascending and transverse colons, were outside the body cavity and merely covered with amnion.

Osteo-Arthritis in Child.—Weatherbe's patient was only 4 years of age and had been bedridden since the deformity began at 18 months of age. There was absolute ankylosis of the left elbow joint; the left wrist joint was swollen and stiff, and impossible to dorsiflex, but easily flexed, with no tenderness or pain in these two joints. Both knees were flexed beyond a right angle and ankylosed in this position with swelling and slight tenderness. Both ankle joints were swollen and stiff with very limited movement.

Medical Journal of Australia, Sydney

2: 377-400 (Oct. 13) 1923

Breast Feeeding. S. F. McDonald.—p. 379.
Diagnosis of Silicosis. W. Watkins-Pitchford.—p. 382.
Use of Insulin. J. Sprent.—p. 384.
*Thrombosis of Superior Mesenteric Vein. K. J. G. Wilson.—p. 386.

Thrombosis of Superior Mesenteric Vein.—Wilson's patient was admitted to the hospital complaining of severe pain in the abdomen of five days' duration. At first it was colicky; then as it increased in severity it became continuous. She vomited several times and the pain lessened considerably, so that two days after the onset of the illness she felt almost well. But on the third day, the pain came on again, with greater severity than before. She vomited many times and, in fact, kept no food down. After admission, the pain was not very severe while she was at rest, but increased in severity on movement. She had vomited last in the morning. She was constipated. The diagnosis of subacute intestinal obstruction was made and operation advised. As soon as the peritoneum was incised, an appreciable amount of fluid escaped, at first clear, but later blood stained. The small intestine was distended, bluish in color and lusterless. The arteries formed a visible network in its walls, were engored and raised above the surface of the bowel. When the upper part of the mesentery of the small intestine was examined, a clearly visible dark swelling was seen at its root. On palpation it proved to be a collection of firm nodular clots in the lumen of the superior mesenteric vein, completely blocking the lumen. It was decided to close the abdomen and allow egress to any accumulation of toxic fluid in the peritoneal cavity by a pelvic drain. At the end of the second day after operation a simple enema acted well with a formed stool. Enemata were given every second day until the seventh day, when aperients were given by mouth, when necessary. The abdomen remained distended for three days and then gradually subsided. Fluid diet (water and milk) was given for fourteen days, when the diet was increased to full amount. Evidently gradual recovery occurred through the inferior mesenteric vein taking on the function of the superior vein.

South African Medical Record, Cape Town

21: 437-460 (Oct. 13) 1923

Acute Diarrhea of Infants. B. G. Melle.—p. 439.
Complications of Diarrhea and Vomiting. F. S. D. Berry.—p. 443
Bacteriology of Diarrhea. J. Pratt-Johnson.—p. 443.
Care of Pregnant Woman. C. W. Comrie-Sharp.—p. 446.
Duration of Human Life in Different Parts of South Africa. C. Pijper.—p. 448.

Annales de l'Institut Pasteur, Paris

37: 787-878 (Sept.) 1923

*Lipoids from Tubercle Bacilli. A. Boquet and L. Nègre.—p. 787.
*Algid Phase in Cholera. G. Sanarelli.—p. 806.
Morbid Sensitivity. M. Nicolle and E. Césari.—p. 837.
*Destruction of Fixed Virus. P. Remlinger.—p. 852.
Complement Fixation in Bovine Tuberculosis. Brocq-Rousseu, A. Urbain and Cauchemez.—p. 872.

Lipoids from Tubercle Bacilli.—Boquet and Nègre state that extracts of tubercle bacilli made with methyl alcohol or with acetone fixed complement with the serum from tuberculous animals, and produced complement fixing antibodies. The methyl alcohol extract, however, did not produce anaphylaxis. Similar extracts of diphtheria bacilli and a suspension of lecithin from eggs reacted also with these serums. It is probable that the reaction depends on the phosphatids. Injection of methyl alcohol extracts slightly prolonged the life of tuberculous animals, while acetone extracts shortened it.

The Algid Phase in Cholera.—Sanarelli produced experimentally a condition very similar to the algid stage of cholera by injecting sublethal doses of other microbes into animals that had been previously injected with harmless doses of cholera vibrios or their proteins.

Destruction of Fixed Virus.—Remlinger publishes observations on rabbits which did not react to inoculation with *virus fixe*, or which developed merely choreiform movements instead of the typical symptoms of paralytic hydrophobia. It is possible that accidental contamination had destroyed the virus so completely that the animals remained susceptible to hydrophobia at a second inoculation.

Annales de Médecine, Paris

14: 173-256 (Sept.) 1923

Nucleus Ruber Syndrome. M. Chiray, C. Foix and Nicolesco.—p. 173.
Syphilitic Psychoses. R. Targowla.—p. 192.
Variations in Sympathetic Irritability. Laignel-Lavastine.—p. 207.
*Kidney Function in Diabetes. E. Urech.—p. 231.
*Treatment of Diabetes. M. Labbé.—p. 249.

Kidney Function in Diabetes.—Urech examined the renal function in twenty-two diabetics. It was good in young patients and was disturbed in the older subjects. There was, however, no pronounced retention of urea in the blood. The retention of sodium chlorid did not parallel the retention of water.

Treatment of Diabetes.—Labbé discusses Petrén's views on the pathology and treatment of diabetes. The central point is the theory of the dominating disturbance of protein metabolism. Proteins are much more dangerous in acidosis than fat, of which Petrén gives 200-300 gm. daily.

Archives Franco-Belges de Chirurgie, Brussels

26: 711-806 (Aug.) 1923

*Bone Syphilis. B. Dujardin.—p. 711.
*Rhizomelic Spondylosis. Peugniez.—p. 720.
*The Condition After Splenectomy. J. Silhol and Y. Bourde.—p. 744.
High Amputation for Senile Gangrene. E. Aubert.—p. 754.
*Missing Fibula. G. Peremans.—p. 764.

Syphilis of the Bones.—Dujardin enumerates the various affections of the bones due to inherited or acquired syphilis. He classifies them as the secondary or early anallergic, the tertiary or allergic parasyphilitic, and the tardy anallergic lesions. He emphasizes that during the allergic phase the susceptibility is not only for the toxins of the causal spirochetes, but for other toxins, tuberculin, and even for harmless substances like milk. Skin tests with any of these substances may elicit positive reactions and mislead the diagnosis, as in a case reported. The patient was a woman, aged 50, with a liver tumor and osteitis in the tibia, with tubercle bacilli in the scrapings. She was sent to a Swiss tuberculosis sanatorium, where she was found to have a positive Wassermann test; the osteitis recovered rapidly under treatment for syphilis. When the allergy of the tissues subsides under specific treatment, this removes the foundation for the secondary tuberculous infection, which vanishes with the syphilitic lesion. He explains further that the organism after living peaceably with its parasites suddenly develops intolerance for them, and this allergy induces a violent local reaction which acts like a fixation abscess, killing off the parasites in minor foci elsewhere. This phase of allergy is useful, further, because the violent local reaction is peculiarly amenable to specific treatment.

Rhizomelic Spondylosis.—Peugniez argues that ossification of the ligaments is the essential element in rhizomelic spondylosis. The total crippling deformity when the process was complete and stationary was overcome, in a case described, by subtrochanteric osteotomy of both hip joints. From absolute immobility and helplessness, the man has become able to walk for three or four hours a day, and sit on a seat 0.69 cm. high. [This case was summarized in these columns Sept. 1, 1923, p. 784, when published elsewhere.]

After Splenectomy.—From the medicolegal standpoint, the injury caused by splenectomy seems to be only the impairment of the abdominal wall; but before certifying to the harmlessness of the loss of the spleen, the blood must be examined for anemia, for cholesterol, and for fragility of the corpuscles, and the stools should be examined to estimate liver functioning.

Absence of the Fibula.—A bilateral congenital case, and a case of loss from osteomyelitis in a child, are reported.

Archives des Maladies du Cœur, etc., Paris

16: 625-688 (Sept.) 1923

*Oscillometry of the Pulse. R. Alexandre and R. Moulinier.—p. 625.
Aneurysms of Aorta Above the Diaphragm. Saloz and Frommel.—p. 637.
Prognosis of Inflammatory Valvular Lesions. N. Betchov.—p. 646.
Purulent Pericarditis; Recovery After Puncture. E. Cottin and M. P. Gautier.—p. 651.
*Function of the Left Ventricle. E. Géraudel.—p. 659.

Oscillometry of the Pulse.—Alexandre and Moulinier conclude that the diagram of the oscillations of the pulse is a picture of the play of cardiac energy. But it is only a reflected and distorted picture.

Function of the Left Ventricle.—Géraudel reports, as the result of his examinations of the shape of the cavity of the left ventricle, that the changes are different in different affections.

Journal d'Urologie Médicale et Chirurgicale, Paris

16: 177-255 (Sept.) 1923

*Correlation Between Bladder and Kidneys. M. Sérès.—p. 177.
*Pseudostone Colic in Renal Tuberculosis. R. Lanzilotta.—p. 205.
*Functional Tests of Polycystic Kidneys. Negro and Colombet.—p. 216.
*Neoplasm of the Prostate. A. Cosacesco.—p. 226.
Fistula with Hypertrophied Prostate. J. Martin.—p. 229.
Double Urethra. G. Bernadet.—p. 232.
*Autoserotherapy in Gonorrhea. A. Quenay.—p. 234.

Correlation Between Bladder and Kidneys.—Sérès investigated the polyuria which accompanies retention of urine, and found that it is more marked in the first hours of the retention and after evacuation of the bladder. In prolonged retention, oliguria is the rule. Patients with normal or exaggerated contractility of the bladder react more intensely than those with a weak muscle. Experiments on dogs proved that this polyuria is of reflex origin, and he was able to trace in the dog the afferent route from the inferior mesenteric ganglion to the kidneys. Similar anatomic conditions are present in human fetuses. These facts may prove of value in the explanation and treatment of reflex anurias.

Pseudostone Colic in Renal Tuberculosis.—Lanzillotta describes seven cases of the "pseudolithiasis" type of tuberculosis of the kidneys. The patients had typical renal colic. Examination of the urine and roentgenography furnished the differentiating signs.

Functional Tests of Polycystic Kidneys.—Negro and Colombet publish seven cases of polycystic degeneration of the kidneys from Marion's clinic. The elimination of phenolsulphonephthalein was markedly diminished in all of them, although the other tests (concentration, Ambard's coefficient) were normal or only slightly affected.

Neoplasms of the Prostate.—Cosacesco found in patients suffering from neoplasms of the prostate a retraction of the wall and subsequent enlargement of the lumen of the prostatic part of the urethra. The change can be clearly seen with the cystoscope.

Autoserotherapy in Gonorrhea.—Quenay's experience has been that autoserotherapy (2-4 c.c. of serum) influenced favorably the complications of gonorrhea, but did not act on the urethritis at all.

Médecine, Paris

4: 813-888 (Aug.) 1923

Recent Acquisitions in Pediatrics. P. Lassablière.—p. 813.
*Mitral Disease in Children. P. Nobécourt.—p. 822.
Pneumococcus Infection in Infants. Weill and C. Gardère.—p. 824.
*Convulsions in Infants. P. Rohmer.—p. 830.
*Diagnosis of Scarlet Fever. G. Mouriquand.—p. 836.
*Maternity Home for Unmarried Women. P. Chatin and Rheuter.—p 841.
*Nephritis in Children. P. Merklen.—p. 847.
*Splenomegaly in Syphilis. M. Péhu.—p. 853.
*Adenopathies in Inherited Syphilis. G. Blechmann.—p. 859.
Therapeutic Pneumothorax in Children. P. F. Armand-Delille [illegible] p. 863.
*Ipecac in Digestive Disturbances. A. Bérard.—p. 869.
Vulvovaginitis in Little Girls. G. Schreiber.—p. 871.
*Myxedema in Infants. G. L. Hallez.—p. 876.
Treatment of Acute Endocarditis. P. Lassablière.—p. 881.
Treatment of Rickets. L. Pélissier.—p. 882.

Mitral Disease in Children.—Nobécourt finds that combined mitral stenosis and insufficiency is about as frequent in children as pure mitral insufficiency. The differential sign is the dilatation of the left auricle in the combined form. Its symptoms and prognosis are graver than in pure insufficiency. Pure mitral stenosis is rare.

Convulsions in Infants.—Rohmer sees a physiologic predisposition to convulsions in infants. In 90 per cent. of the cases the convulsions are due to spasmophilia. Doses of 12 gm. of crystallized calcium chlorid (or 6 gm. of the anhydrous salt) given in solution daily for two weeks stop the dangerous attacks of convulsions and laryngospasm in the children.

Diagnosis of Scarlet Fever.—Mouriquand confirms the claim that Pastia's sign is characteristic of scarlet fever. It consists in a linear exanthema following the flexion folds of the skin, especially at the elbow. It was found only exceptionally in measles and in recurring scarlatiniform erythema. Schultz and Charlton's extinction phenomenon is also characteristic.

Maternity Home for Unmarried Women.—Chatin and Rheuter describe the regulations of the "Samaritaine," a house where unmarried pregnant girls are accepted and cared for medically and socially. Absolute secrecy is maintained on request of the girl.

Nephritis in Children.—Merklen reviews the differences between nephritis in children and in adults. He asserts that the urine should be examined not only after scarlet fever, but after every infectious disease and suppuration. The majority of cases are of the dropsical type. Hypertension is present in acute cases, and causes dilatation of the heart. Contrary to adults, gallop rhythm may occur in the acute stage rather than in the chronic. Enlarged liver is the rule in such cases. Albuminuria is often only intermittent, which necessitates repeated examinations. Orthostatic albuminuria has to be taken into consideration in some instances of post-scarlatinal nephritis of a similar type. Syphilitic nephritis can be guessed at rather than diagnosed. Renal aplasia may be responsible for part of the disturbances.

Splenomegaly Suggests Inherited Syphilis.—Whenever the spleen of an infant is palpable a finger breadth below the costal arch, Péhu thinks of syphilis. The enlargement is not present in all cases. Other diseases which might be responsible for the splenomegaly are certain bronchopneumonias, cutaneous ulcerations and tuberculosis.

Adenopathies in Inherited Syphilis.—Blechmann reviews the frequency of small enlarged lymphatic glands in inherited syphilis in infants. The enlargement may be due to cutaneous affections (eczema, prurigo, impetigo), to tuberculosis or to syphilis. The epitrochlear (especially if affected on both sides) and the retromastoid glands are the most important.

Ipecac in Digestive Disturbances.—Bérard uses in chronic dyspepsias in children 4-40 drops of tincture of ipecac an hour or half an hour before meals. Six or more drops daily act favorably on the dyspepsia alleged to be normal in artificially fed infants.

Thyroid Treatment of Myxedema in Infants.—Hallez considers 1 cg. of dried thyroid for each 6 months of age as the proper dosage. He advises beginning with small doses and increasing if the rectal temperature remains under 37 C. or if the symptoms do not disappear. Rapid loss in weight, tachycardia, diarrhea, agitation and insomnia are contraindications. Etiologic treatment should not be omitted in syphilitic infants.

Nourrisson, Paris

11: 289-352 (Sept.) 1923

*Eczema of Infants. A. B. Marfan.—p. 289.
Blood in Experimental Scurvy. Lesné et al.—p. 304.
Inherited Syphilis. H. Lemaire and R. David.—p. 308.
*Vaginal Hydrocele in Infants. G. Salès and P. Vallery-Radot.—p. 321.
*Intestinal Motor Function in Infants. H. Blagodatny.—p. 331.

Eczema of Infants.—Marfan finds that the popular term "milk crust" expresses exactly the fact, namely, that eczemas in infants are related to the milk diet. A hereditary taint (arthritism) is necessary, but the main cause is overfeeding with milk (usually too frequent feedings), especially excessive fat content of the milk. Over 4.5 per cent. of fat in the mother's milk might be the cause. Local treatment after removal of the crusts, thyroid medication, subcutaneous injections of milk, and high altitudes (3,000-4,500 feet) are recommended.

Vaginal Hydrocele in Infants.—Salès and Vallery-Radot consider as probably syphilitic those hydroceles in the first months of infancy that last over four to six weeks after puncture. The testis is hard and smaller, rarely larger, than normal. The affection is unilateral.

Intestinal Motor Function in Infants.—Blagodatny publishes roentgenograms and observations on the time of passage of a test meal in infants.

Revue Française d'Endocrinologie, Paris

1: 281-376 (Sept.) 1923

*The Islands of the Pancreas. E. Laguesse.—p. 281.
Insulin. Benoit.—p. 312.
*Thymocytes and Lymphocytes. A. P. Dustin.—p. 332.

The Islands of the Pancreas.—Laguesse reviews the history of the discovery of the endocrine function of the pancreas, and its present status.

Thymocytes and Lymphocytes.—Dustin found differences between the reactions of lymphocytes and similar cells in the thymus (thymocytes). He therefore considers these two classes of cells as different.

Revue Franç. de Gynécologie et d'Obstét., Paris

18: 433-480 (July) 1923

Management of Breech Presentation. L. Demelin.—p. 433.
Pituitary Extracts in Obstetrics. F. Chatillon.—p. 448.
Hypertrophy of Breasts at Puberty. J. P. Tourneux.—p. 454.
Technic of Epidural Anesthesia. Audebert and Bernardbeig.—p. 460.

18: 481-520 (Aug.) 1923

*Congress on Puerperal Fever.—p. 481.
*Congress on Gynecology and Obstetrics.—p. 497.

Congress Transactions.—This issue is devoted to the main addresses presented at the Congress on Puerperal Fever, held at Strasbourg, August 2-3, and the Congress of French-speaking gynecologists and obstetricians, held at Geneva, Aug. 9-11, 1923.

Archivio Italiano di Chirurgia, Bologna

7: 517-608 (Aug.) 1923

The Scientific Works of V. Remedi. G. Bolognesi.—p. 517.
*Case of Cephalocele. F. Rossi.—p. 523.
*Arterial Pressure in Spinal Anesthesia. F. Virgillo.—p. 529.
Traumatic Aneurysm. F. Purpura.—p. 550.
*Ligation of Wisp of Esophagus Wall. M. Bufalini.—p. 567.

Encephalocele.—The tumor in the prematurely born infant was removed at the age of two months. It was an encephalocystocele, and contained 290 c.c. of fluid. Two silk ligatures sloughed out and the child developed strabismus; but these were the only postoperative disturbances. In Reali's compilation of 144 cases of occipital encephalocele, only 7 lived to adult age, and all of Müller's 39 cases died within the first year. Rossi has collected 28 operative cases since 1907,

with 17 cured and one improved. Syphilis should always be sought in these cases.

The Blood Pressure During Intraspinal Anesthesia.—Virgillo was unable to detect any connection between the pressure in the spinal fluid and the blood pressure. The latter always declined during intraspinal anesthesia by 10 or 20 mm. of mercury, and in a few cases even by 100 or 130 mm. This drop in blood pressure was not accompanied by general symptoms in his experience with 110 cases. He gives a preliminary subcutaneous injection of 0.25 gm. of caffein two or two and a half hours before. This reduces the systolic and diastolic pressure in from thirty to sixty minutes, but by the end of the second hour they have risen to above normal.

Experimental Ligation of Wisp of Esophagus Wall.—The aim was to induce conditions in rabbits analogous to a diverticulum in man, to permit study of the effects of ligation. Bufalini reports that the outcome does not justify ligation alone in treatment of a diverticulum in the upper esophagus. The outlook is more favorable when the ligature can be applied to the abdominal portion.

Pediatria, Naples

31: 1025-1080 (Oct. 1) 1923

Qualitative Arneth Leukocyte Count in the New-Born. S. Fabris.—p. 1025.
Latent Tuberculosis in Infants. A. Corica.—p. 1032.
*Treatment of Vincent's Angina. G. Castorina.—p. 1036.
Hernia in Children. V. Craglietto.—p. 1041.
Inorganic Murmurs in Infancy. A. de Capite.—p. 1060.

Treatment of Vincent's Angina.—Castorina reports favorable results in seven children suffering from fusospirillar infections. He used in some patients silver arsphenamin, and in others potassium tartrobismuthate.

Policlinico, Rome

30: 485-532 (Oct. 1) 1923. Medical Section

*Experimental Rickets. U. Nuvoli.—p. 485.
Cyst at Apex of Lung. A. Baccichetti.—p. 505.
Relapsing Fever in Somalia. U. Reitani and E. Parisi.—p. 514.
*Leukolysins in Leukopenia. A. Ronchi and L. Sabatini.—p. 528.

Experimental Rickets.—Following Ghilarducci's advice, Nuvoli subjected the pituitary region of young rabbits to the action of roentgen rays. Abnormal growth of bones, resembling rachitis, followed. No adiposogenital syndrome developed.

Leukolysins in Leukopenia.—Ronchi and Sabatini found leukolysins in the serum of children suffering from different diseases that caused leukopenia. The substance is thermolabile, and they believe that it is a product of the microorganisms present.

Rivista di Clinica Pediatrica, Florence

21: 513-576 (Sept.) 1923

*Intestinal Phenomena in Pneumonia. U. Montanari.—p. 513.
Vaccination and Growth of Infants. Allaria and Canelli.—p. 531.
New Home of Pediatric Clinic at Bologna. C. Francioni.—p. 545.

Intestinal Phenomena in Pneumonia.—Montanari concludes from the presence of the pneumococcus in the feces, that the intestinal tract may be affected in pneumonia. It was in fact, in the necropsies he had seen. Constipation indicates a good prognosis in pneumonic children, while diarrhea, as already observed by Hipprocrates, is an unfavorable sign. In his sixty-two cases, with a mortality of 8 per cent, four died of the nine children who had diarrhea.

Archivos Brasileiros de Medicina, Rio de Janeiro

13: 861-1018 (Sept.) 1923

*The Model Hospital. I. Malagueta.—p. 861.
*Protozoa. A. E. Estellita Lins.—p. 881.
Diagnosis of a Normal Pregnancy. R. Pacheco.—p. 910.

The Hospital Question.—Malagueta discusses practical arrangements and management of hospitals, and their utilization for teaching purposes. He remarks that the study of tuberculosis, from the practitioner's standpoint, seems to be neglected. The tuberculous are sent away from the hospitals accessible to the students, and no arrangements are made for graduate courses in phthisiology.

Protozoa.—Estellita Lins here concludes his long and detailed study of the diseases traceable to protozoa. He is assistant at the national public health bacteriologic laboratory, and discusses the subject mainly from the standpoint of the diagnosis and prophylaxis.

Archivos Españoles de Pediatría, Madrid

7: 449-512 (Aug.) 1923

*Prophylaxis of Diphtheria. J. Bravo y Frias et al.—p. 449.
Teaching the Mentally Backward. F. Pereira.—p. 473.

Prophylaxis of Diphtheria.—The Schick reaction was positive in 47.4 per cent. of 675 children in a Madrid orphan asylum in which diphtheria had developed in epidemic form this year. In nineteen days, twenty-five cases had developed, but after prompt toxin-antitoxin treatment of the susceptible children, no further cases developed. Of the 319 passively immunized, 4.7 per cent. presented a cutaneous reaction or rheumatoid pains, and one girl developed a severe anaphylactic shock after injection of only 0.5 c.c. No attempt at isolation was made thereafter, but the epidemic was arrested at once. One child with a negative Schick test developed a febrile sore throat next day, but the absence of tachycardia and of pallor testified against diphtheria, and the child recovered without antitoxin. One child entering the institution too late was overlooked, and was not tested or immunized, and this child promptly developed diphtheria, the last case of the epidemic.

Archivos Latino-Amer. de Pediatría, Buenos Aires

17: 561-640 (Aug.) 1923

*Puncture of the Pericardium. J. C. Navarro and J. M. Moret.—p. 561.
*Acid Hyperfat Milk for Infants. E. Gaing.—p. 566.
Suppurative Endopericarditis in Child. A. Volpe.—p. 571.
*Meningitis in Infant. J. M. Penco.—p. 573.
*Laryngeal Tuberculosis in Children. J. C. Munyo and M. Jaureguy.—p. 578.
*Infant Welfare Work. C. Ferreira.—p. 582.
Pneumothorax Complicating Typhoid. E. Portu Pereyra.—p. 606.
*Tetanus in Infants. R. Berro.—p. 611.

Puncture of the Pericardium.—The dyspnea and cyanosis in the girl, aged 4, the enormous cardiac area, and the enlarged liver confirmed a diagnosis of pericardial effusion, but the good general condition and moderate fever testified against a suppurative process. Navarro and Moret punctured the pericardium by Marfan's technic. The needle enters at the lowest point, and there is no danger of injuring the pleura or lung. The patient was in a semiseated position, and the needle was introduced to graze the vertex of the xiphoid appendix. The case illustrates the ease and effectiveness of this technic, which released 60 or 70 c.c. of fluid, although the benefit was only transient in this tuberculous case.

Infant Feeding During Hot Weather.—Gaing's acid hyperfat milk for infant feeding was described in THE JOURNAL, Oct. 1, 1921, p. 1140. He here reports further success with it in twenty-two weakly, newly born infants during the hot weather.

Meningococcus Meningitis in Infant.—The infant was 5 months old, and the acute meningitis subsided completely under treatment with 75 c.c. of antiserum injected intraspinally in amounts of 20 or 15 c.c. during the week.

Laryngeal Tuberculosis in Children.—Munyo and Jaureguy state that they have observed six cases in the last two and a half years. There had been no symptoms indicating that the lungs were affected. In a case described in detail, the diagnosis had been acute laryngitis in the boy, aged 7, and diphtheria antitoxin was injected. Chronic pulmonary tuberculosis and the laryngeal process proved fatal in about two months.

Infant Welfare Work.—This is the annual report for 1922 on the work in the state of S. Paulo of the infant welfare department of the public health service.

Tetanus in the New-Born.—Two of Berro's four cases terminated fatally. The two other infants recovered under serotherapy; 70 c.c. was given by the longitudinal sinus in scarcely more than forty-eight hours in one of the surviving children. Tetanus developed in a boy, aged 5, eight days after a fall which had driven a stick into the perineum so deep that its presence had not been suspected. The anti-

serum was injected around the wound, into the gluteal muscle and intraspinally, thus distributing 60 c.c. Under continued serotherapy recovery was soon complete.

Prensa Médica Argentina, Buenos Aires

10: 305-332 (Sept. 30) 1923

*To Raise Funds for Public Health Work. M. Aberastury.—p. 305.
*Malignant Slow Endocarditis. C. Dominguez and J. J. Puente.—p. 312.
Ankylosis of Hip Joints and Spine. R. Finochietto.—p. 320.

Ways and Means to Raise Funds for Public Health Work.—Aberastury proposes a small additional tax on every form of tobacco, to provide a reserve fund for general public health work.

Slow Malignant Endocarditis.—The onset had been acute with joint disturbances suggesting acute rheumatism and chills, but these symptoms subsided, and the clinical picture became that of septicemia, with heart disease, painful large spleen and glomerular nephritis. A hemolytic streptococcus was cultivated from the blood. The anemia was pronounced, and of an aplastic type. The case ran a six months' course, and necropsy disclosed a fibrinous pericarditis as well as the typical vegetations in the mitral valve, etc.

Revista Española de Medicina y Cirugía, Barcelona

6: 429-492 (Aug.) 1923

Pyelotomy. Manuel Serés.—p. 429.
Influenzal Pneumonia. J. Cuatrecasas Arumi and L. Trias de Bes.—p. 438.
*Malaria in Southern Spain. A. Salvat y Navarro.—p. 441.
Insulin Treatment in France. J. Salvat y Martí.—p. 450.

Malaria in Southern Spain.—Salvat discusses the ways and means proposed by the official committee which has been studying the malaria question in certain provinces.

6: 493-556 (Sept.) 1923

*Compound Fracture of Shafts of Bones. M. Corachán.—p. 493.
The Heart Murmurs. M. Torelló Cendra.—p. 502.
*Diathermy in Gonorrhea in Males. M. Serés.—p. 511.
The New Criteria of Social Hygiene. A. Salvat et al.—p. 515.

Treatment of Compound Fracture of Shafts of Long Bones.—Corachán emphasizes that every compound fracture must be regarded as infected. He regards traction on the bone itself as the best means for extension, and urges care of the general condition as an important aid in treatment of fractures. Antiserums against tetanus and gangrene are often indispensable.

Diathermy in Gonorrhea in the Male.—Serés is convinced that nothing is so effectual as diathermy in dislodging gonococci lurking in the tissues around the urethra, which may maintain the infection for years. His rectal electrode opens like a fan in the rectum, and thus acts on a large area, including the prostate and seminal vesicles. Even at the best, this treatment is not always successful, as some gonococci escape in the deeper tissues. But gonococcal epididymitis and gonococcal urethritis in women can always be cured with diathermy as the anatomic conditions allow a perfect electric bake. When technic is perfected to allow this throughout, gonorrhea will be conquered; it is merely a question of enough electrodes. With recent infection, the gonorrhea is cured in two or three sittings, but acute urethritis in the male once established has generally proved refractory. Only when it has subsided under the usual local measures, does diathermy help to eradicate the infection. With more and larger electrodes he is confident that every acute urethritis can be conquered.

Revista Médica del Rosario, Argentina

13: 233-311 (Aug.) 1923

Artificial Pneumothorax with Creosoted Air. Barralt.—p. 233.
*Hemorrhagic Glioma in Medulla. T. Fracassi and F. R. Ruiz.—p. 245.
Osteomyelitis of the Femur with Myiasis. A. Zeno and A. Boden.—p. 262.
*Congenital Hypertrophy of Limbs. M. Steinsleger.—p. 265.
*Vesical Dystocia. R. B. Borghi.—p. 273.
*Emetin Intoxication. C. Alvarez.—p. 276.
Cultivation of the Gonococcus. R. Barralt.—p. 287.
Spirochetal Bronchitis. Three Cases. A. A. Otaño.—p. 292.

Hemorrhagic Glioma in Medulla.—Fracassi and Ruiz give seven illustrations of a case of a hemorrhagic glioma in the medulla oblongata of a girl of 8. Another child at the same time presented similar symptoms from intracranial hypertension and a focus in the cerebellopontile angle, but the lesion was tuberculous in this case.

Congenital Hypertrophy of One Leg.—In Steinsleger's three cases, the presence of angiomas in the hypertrophied limb and elsewhere sustains the etiologic importance of circulatory disturbances. In one infant, aged 25 days, one thigh measured 28 cm., the other 15; one calf, 24 cm., the other 10. Kondoleon's resection of the aponeurosis seems the most promising treatment in such cases when the monstrosity is compatible with life.

Vesical Dystocia.—A tumor that seemed to be a cyst below the fetal head impeded delivery, and it was punctured through the vagina. About 400 c.c. of blood-stained fluid was withdrawn and the child was delivered with forceps. The tumor proved to have been the bladder, and in a later pregnancy the bladder was found again in the same low position in the side, pushing the uterus over completely to the left side, but it returned to place when the bladder was emptied.

Emetin Intoxication.—In one of Alvarez' three cases, paralysis of the pharynx and difficulty in holding up the head, with extreme asthenia, were the main symptoms of the intoxication. In the others the disturbances were gastro-intestinal. Study of these cases and of the literature seems to indicate that treatment of amebic dysentery should be with subcutaneous injection of 0.10 gm. daily for five days. After a two weeks' pause, repeat with a second series with a smaller dose, never giving more than 1 gm. in one month.

Semana Médica, Buenos Aires

2: 185-240 (Aug. 2) 1923

Zinc in Treatment of Syphilis. N. V. Greco.—p. 185.
*Hookworm in Argentina. T. A. Tonina.—p. 191.
Defective Osteogenesis. M. T. Vallino.—p. 218.
Secondary Anthrax Pleurisy. J. B. Ormaechea.—p. 221.
Morphin and Nitrosomorphin. L. Rossi.—p. 224.
Subtotal Hysterectomy for Dystocia. M. Cella.—p. 226.

Hookworm in Argentina.—Tonina states that the hookworm is common in a large part of Argentina, and is occasionally imported into the regions which have as yet escaped its ravages. Children are infested much more frequently than generally suspected, but the infection may lie latent until early adult age. At the Children's Hospital at Buenos Aires, there have been 36 cases under treatment in fifteen years, and 16 cases of malarial anemia. Bacigalupo uses an extract of hookworms to induce a reaction like the Schick reaction in diphtheria. The responses and the significance seem the same except that the findings in the healthy are sometimes conflicting.

Archiv für Gynäkologie, Berlin

119: 379-580 (Sept. 29) 1923

Inadequate Labor. F. Kermauner.—p. 379.
*Vaccines in Gynecology. Bucura.—p. 384.
Decapitation with Hooked Knife. R. Franz.—p. 396.
*Metabolism and Eclampsia. A. Mahnert.—p. 407.
*Defensive Ferments with Cancer. H. Zacherl.—p. 440.
Chorio-Angioma. A. Santner.—p. 454.
*Thyroid Function in Pregnancy. H. Knaus.—p. 459.
Serologic Diagnosis of Cancer. K. Lundwall.—p. 468.
Mechanics of Labor. A. Mueller.—p. 474.
*Neutralization of Placenta Toxin. T. Hayashi.—p. 505.
*Cholesterol Metabolism. E. Leupold and F. Seisser.—p. 552.
Rare Kind of Ovarian Tumors. E. M. Matsner.—p. 563.

120: 1-340 (Oct. 1) 1923

Transactions of the Eighteenth German Gynecologic Congress.

Vaccines in Gynecology.—Bucura suspects defective technic in treatment in the reported instances of failure of vaccine therapy of gonococcal infection in women. The treatment acts, however, only on closed affections. Open localizations have to be treated locally. He uses vaccines in prophylaxis before operations (including curettements) on infectious processes. Focal reaction following the injection of a vaccine is a warning sign against a premature operation. Deferring the operation allows it to be performed successfully later, if it does not become superfluous after a full course of vaccine treatment. Vaccine therapy should precede the operation in infected carcinomas of the cervix.

Metabolism and Eclampsia.—Mahnert found that carbohydrates, proteins, fats are less regularly and less well oxid-

ized in pregnant women. The respiratory quotient is lower than normal, and the decrease in carbon dioxid elimination is especially marked on a protein diet. Examination of the blood revealed a tendency to acidosis. This was particularly pronounced in the toxemias of pregnancy.

Defensive Ferments with Cancer. — Zacherl had clean-cut results with Pregl and de Crinis' method of determining the Abderhalden ferments in the serum in cases of carcinoma of the uterus. The age of the patients and controls did not influence the results. Complete extirpation of the tumor was followed by a progressive disappearance of the ferment. Roentgen irradiation of some of these patients provoked in a day or two a reappearance of the ferment. They attribute this to the latent presence of cancer cells. One must not assume a cure, they reiterate, unless these ferments are absent before and after irradiation.

Thyroid Function in Pregnancy. — Knaus injected virginal rats for two to four weeks with extracts from the corpus luteum. The sex organs of these animals were enlarged and hyperemic, and the thyroid glands were also much heavier than the controls. There was an increase in the amount of colloid in these goiters. He concludes that the corpus luteum causes inhibition of the output of thyroid secretion. The animals gained in weight, which speaks also against hyperthyroidism. The analogy of these findings with the changes in the thyroid during pregnancy is very close.

Neutralization of Placenta Toxin.—Hayashi has continued his experiments in this line. He mixed placental extract and serum, and found that the noncoagulable nitrogen and especially the amino-acid nitrogen was decreased when the action of the serum was not sufficient. It was increased when the serum neutralized the poison. The antitoxic substance is probably of protein nature.

Cholesterol Metabolism.—Leupold and Seisser lowered the cholesterol content in the blood of rabbits by means of thyroidin or diphtheria toxin. They then found pronounced degeneration of the sex gland follicles, affecting especially the more mature animals. Similar results were obtained by extirpation of a suprarenal gland. They believe that cholesterol protects the sex glands (both male and female) from the action of toxins. When it was taken by an animal treated with diphtheria toxin, degeneration was slight. Male rabbits in which the blood cholesterol had been lowered by thyroid feeding, had a much decreased libido.

Archiv für klinische Chirurgie, Berlin

127: 1-758, 1923. Körte Festschrift.

*Regeneration of Bone. A. Bier.—p. 1.
Regeneration of Tendon Inside Its Sheath. H. Huek.—p. 137.
*Reconstruction of the Face. Perthes.—p. 165.
*Operative Treatment of Hydrocephalus. O. Hildebrand.—p. 178.
*Treatment of Erysipelas. F. Bange.—p. 195.
*Surgical Treatment of Angina Pectoris. A. Borchard.—p. 212.
Acute Infectious Disease of Costal Cartilages. F. König.—p. 222.
Transperitoneal Operation for Pelvic Tumors. W. Müller.—p. 233.
*Diffuse Peritonitis. H. Wildegans.—p. 239.
*Gallstone Operations. A. Brentano.—p. 275.
*Gastric Secretion in Gallstone Cases. G. Cohn.—p. 306.
Resection for Perforated Ulcer. H. Riese.—p. 327.
*Diagnosis of Perforation of Ulcer. F. Ochlecker.—p. 344.
The Stomach Channel. J. C. Lehmann.—p. 357.
Gangrenous Prolapse of Ileocecal Valve. L. Rehn.—p. 376.
Radical Treatment of Rectal Cancer. M. Kirschner.—p. 385.
Invagination-Resection. C. Falkenburg.—p. 407.
Surgery of the Spleen. R. Mühsam.—p. 415.
Colon Bacillus Infection of the Kidney. A. Barth.—p. 438.
Supernumerary Ureters. D. Kallmann.—p. 453.
Treatment of Genital Tuberculosis in Males. E. Schwarz.—p. 474.
Inguinal Hernia in Wartime. S. Peltesohn.—p. 493.
*Varices. R. Klapp.—p. 500.
Symmetrical Senile Gangrene. L. Heidenhain.—p. 514.
*Cancer on Leg. M. Grosser.—p. 529.
Removal of Bullets Under Roentgen Rays. A. Eiselsberg.—p. 550.
*"Lattice-Work Lung." F. Sauerbruch and R. Nissen.—p. 582.
*Cholecystitis Without Gallstones. O. Nordmann.—p. 600.
*Cancer in Accessory Thyroid. A. Kamsler.—p. 624.
*The Muscles in Fractures. E. Rehn.—p. 640.
Purpose and Fate of Albee Implants. K. Biesalski.—p. 667.
*Operative Treatment of Asthma. H. Kümmell.—p. 716.
Pneumocephalus After Fracture of Skull. H. Schloffer.—p. 731.
Ileocecal Tumor from Perforating Gallstones. Müller-Hagen.—p. 745.
Successful Operation for Diaphragmatic Hernia. Müller-Hagen.—p. 747.
Spontaneous Restitution After Gastro-Enterostomy. J. Ulrichs.—p. 749.
Repeated Fracture of Spine. G. Puppe.—p. 752.

Regeneration of Bone.—Bier recalls that he has published more than twenty reports on his research in the last thirty years on bone implants, pseudarthrosis and regeneration of bone in general. The 102 illustrations in this article confirm his view that true regeneration occurs only under certain conditions, and it is impossible at present to foretell when these conditions will be realized, but everything testifies to the importance of the formative stimulus of the implant. The regeneration of the bone proceeds along the lines which the implant would have followed if it had been left in its normal position. A metatarsal bone implanted in the mandible allowed free use of the jaw, but, notwithstanding years of this functional training, the implant grew into the shape of a whole metatarsal bone, the twin of the half left behind. The implant imposed its structure also on the bone into which it was fitted; marrow formed in the adjacent jaw bone in this case. Consequently he selects the implant with a view to structure conditions. A joint can be reconstructed at the natural site of the joint much better than at other points.

Visor Scalp Flap Reconstruction of Face.—Perthes' experience has been gratifying in cases of destruction of the floor of the mouth and chin. A case is described of tardy roentgen-ray necrosis with sloughing of the entire lower jaw and its soft parts. Also a case of cancer involving the jaw and neck.

Operative Treatment of Hydrocephalus in Children.—Hildebrand summarizes the various attempts in this line. He reports a case in a girl infant, aged 6 months, with progressive improvement during the six months since he cut an opening, totaling nearly 2 square centimeters, in the roof of the right orbit, with a corresponding opening in the dura. Through this the lateral ventricle was punctured and the puncture hole enlarged to make it permanent. He adds that this intervention is mild compared to Dandy's method.

Treatment of Erysipelas.—Bange recalls that the aim in all methods of treatment of erysipelas seems to be to induce hyperemia. Iodin and the ultraviolet and roentgen rays seem to be the simplest means of accomplishing this.

Surgical Treatment of Angina Pectoris. — As the last resource in a case of daily attacks of angina pectoris, with good heart action, in a man aged 54, Borchard resected the depressor nerve and also removed the superior ganglion of the cervical sympathetic. The patient died in less than three weeks with symptoms suggesting a focus of softening in the left fossa of Sylvius. There had been no return of the angina pectoris after the first four days.

Diffuse Peritonitis.—Wildegans reports from Körte's service 1,071 operative cases since 1910, with recovery of 64 per cent.

Gallstone Operations. — Brentano states that gallstones escaped discovery at the operation in 6 per cent. of his 280 cases.

The Digestive Juices in Gallstone Cases. — Cohn's tables show hypo-acidity in the stomach with gallstone disease in 87 per cent. of 44 cases, and in 100 per cent. of 63 after removal of the gallbladder. This constant achlorhydria seems to be permanent after cholecystectomy. He traced in 11 cases this decline in gastric juice secretion from before to after the removal of the gallbladder. Ferment production does not seem to be modified.

Diagnosis of Perforation of Gastric and Duodenal Ulcer.—Oehlecker has found pain in the shoulder a reliable symptom in dubious cases of gastric or duodenal ulcer when perforation ocurred. There is no special tenderness in the shoulder, no radiating pain from the liver, but an isolated spontaneous pain mostly at the extreme tip of the shoulder. This "distant phrenic nerve symptom" he ascribes to irritation of the phrenic nerve by material escaping into the subphrenic space on account of the perforation. This symptom was pronounced in 90 per cent. of all his gastric or duodenal ulcer perforation cases. This isolated shoulder pain is an index of something abnormal in the subphrenic space.

Study of Varices.—Klapp argues that the waste products of metabolism are not swept along in the saphenous vein as in other veins, on account of gravity, and the large size of

the vein. The blood with this local excess of waste products induces regional disturbance in metabolism, and this explains the complications of varices, leg ulcer, eczema or anomalies in bones or nails. He extols his method of multiple subcutaneous discission of all the varicose veins, the leg supported perpendicularly.

Cancer of the Leg.—A chronic ulcer had preceded the cancer in all of the eight cases of this kind recorded at the Urban Hospital. All were women but 2; one woman had the right leg amputated for cancer, and, seven years later, the left leg for the same cause. Bruns has collected 368 cases, and says that more than 33 per cent. were cured by an operation. Grosser describes further the case of a girl who developed lupus at the age of 3½. Roentgen treatment and arc light treatment were applied, with the complete cure of the lupus in the face, but four years later roentgen cancer developed in the dorsum of one foot and on both arms. The girl was only 13½ when the roentgen cancer was removed from the first hand. Hesse found in 94 collected cases of roentgen cancer that the intervals between the first roentgen dermatitis and the first suspicion of cancer varied from one to eleven years. The incubation of the dermatitis also ranged from one to eleven years.

"Lattice Lung."—The colored plate shows the changes in the lung after chronic suppuration which justify the term *gitterlunge*. Four cases are reported, all with recovery.

Cholecystitis Without Stones.—Nordmann has operated in 500 cases of gallbladder disease. In 33 of them no trace of gallstones could be discovered although the symptoms had included colic simulating gallstone mischief, and 4 in this group died. These fatal cases emphasize the necessity for calling in the surgeon whenever jaundice persists for two weeks, or with the first attacks of pain, not waiting until irreparable lesions have occurred. The danger of complicating pancreatitis must always be borne in mind: There was acute pancreatitis in 4 of his 18 acute cases, and in 4 of the 15 chronic cases; none died of those with the infectious process restricted to the gallbladder.

Cancer in Accessory Thyroid.—There has been no sign of recurrence during three years since the accessory thyroid with malignant disease was removed from the right side of the neck of a girl aged 18. Five somewhat similar cases are summarized from the records.

The Muscles with Fracture.—Rehn's experimental and clinical experiences confirm the close biologic connection between the bone, the periosteum and the muscles. It is imperative to maintain this physiologic connection, and hence nothing should be injected or be allowed to separate the muscle from the periosteum. This *organgemeinschaft* is an important factor in the healing of fractures.

Operative Treatment of Asthma.—Kümmell explains the basis for his cure of asthma by excluding and paralyzing the nerves that control the constriction of the bronchi. By severing these nerves, the inspiratory dyspnea disappears. In the four patients successfully treated by this means, the asthma of twenty or more years' standing, was cured at once by resection of the cervical sympathetic and its ganglions, the superior and middle and also the stellate, and the vagus fibers in them. He reaches them between the two parts of the sternocleidomastoid. Even if the asthma should return later, the success to date justifies the operation in such severe cases as these he reports.

Archiv für Verdauungskrankheiten, Berlin

32: 1-88 (Sept.) 1923

Liver Function Test with Indigocarmin. M. Einhorn and G. L. Laporte.—p. 1.
Excretion of Foreign Substances in Bile. A. Winkelstein.—p. 7.
Nose and Digestive Apparatus Reflexes. G. Suda.—p. 13.
Pathogenesis of Icterus. G. Felsenreich and O. Satke.—p. 21.
*Carcinoma in Ulcer. T. Plaut.—p. 51.
*Stomach Juice in Gallbladder Disease. A. Ohly.—p. 61.
Pseudotabetic Type of Gastric Ulcer. S. Mintz,—p. 77.
Low Position of Right Breast. F. Schilling.—p. 81.
"Palpation of Abdomen." T. Hausmann.—p. 83.

Carcinoma in Ulcer.—Plaut reviews critically the question of development of cancer in gastric ulcers. He reports five clinical histories, which make it probable that the carcinoma was present for several years before the operation and did not develop in an ulcer. No occult bleeding was noted in some of his cases. The possibility of subsequent malignant degeneration must not be taken as an indication for resection of ulcers. On the other hand, a chronic indurated ulcer is suggestive of malignancy from the beginning, rather than development into a cancer.

Gastric Secretion in Gallbladder Disease.—Ohly examined the gastric juice in 200 patients suffering from cholelithiasis. He found that early uncomplicated cases have hyperacidity, while the chronic cases present usually subacidity or anacidity. The subjective disturbances localized in the stomach, and the amount of mucus present in some patients of this second group seem to indicate an independent chronic gastritis, which might have been the primary affection.

Deutsche Zeitschrift für Chirurgie, Leipzig

182: 1-160 (Sept.) 1923

*Operative Treatment of Wounds of the Heart. E. Hesse.—p. 1.
Operative Treatment of Hallux Valgus. I. Wymer.—p. 27.
*Biology of Elastic Fibers in Transplants. A. Ladwig.—p. 40.
The Appendicitis Question. F. Heinlein.—p. 48.
*Tumors in Large Intestine. B. Tenckhoff.—p. 57.
*Access to Subdiaphragmatic Space. A. Melnikoff.—p. 83.
*Bullet Runs Around the Skull. K. Gentzsch.—p. 152.
*Resection of Phlegmon in Stomach. H. Zoepffel.—p. 158.

Wounds of the Heart.—Hesse analyzes 48 operated cases at the Petrograd city hospital in twenty years. He insists that there is no absolutely certain symptom of injury of the heart. Of 4 gunshot wounds, 50 per cent. proved fatal, and 70.4 per cent. of 44 stab wounds. The bleeding was temporarily arrested by compressing the wound with the fingers and suturing with silk. One case required eleven sutures; the thread tore through in 8 cases, and only 2 of this group were saved. The patients were all hard drinkers, and as drinking men are more subject to heart wounds, this friability of the heart must be borne in mind and the suture reenforced. Otherwise the linear suture becomes a star suture, with danger of bleeding to death. A free flap from the pectoral muscle is preferable for the plastic operation. He used an omentum flap in one case but it slipped aside and became adherent to the internal layer of the pericardium. Internal hemorrhage was responsible for the fatal outcome in 66.6 per cent. of the 48, including 2 cases in which the bleeding was from an overlooked lesion in the lung. Adhesive pericarditis developed after recovery in 4 cases, and the heart became enlarged in 5 of the total 15 cases with recovery.

Biology of Elastic Fibers.—The illustrations are from heterotransplants.

Tumors in Large Intestine.—Tenckhoff discusses in particular a case of fibroplastic appendicitis in a hernial sac.

Access to Subdiaphragmatic Space.—Melnikoff reaches this region through the lower margin of the thorax, his illustrations showing the various modes of access according to the organ concerned.

Contour Bullet Wounds of the Skull.—In the case of suicide described, the bullet traversed the frontal brain from side to side and then traveled around to the occiput inside the skull.

Phlegmon of the Stomach.—The man recovered after resection of an idiopathic circumscribed phlegmon in the greater curvature of the stomach. It had perforated and induced an encapsulated perigastric abscess.

182: 161-288 (Sept.) 1923

*Syphilitic Disease of Joints. A. Poehlmann.—p. 161,
Present Status of Duodenal Intubation. H. Bronner.—p. 180.
*Cholecystitis. L. Blendermann.—p. 200.
*Lingual Thyroid Tumor. M. Rossteuscher.—p. 217.
*Pathology of the Thymus. E. Bircher.—p. 229.
*Spontaneous Correction of Incarcerated Hernia. v. Renner.—p. 268.
*Renal Hemorrhage. W. Peters.—p. 273.
Incision for Access to Nerves in Axilla. L. Drüner.—p. 281.
*Heredity of Hemophilia. F. Lenz.—p. 284.

Syphilitic Disease of Joints.—Poehlmann is convinced that joint syphilis is common, but is usually mistaken for other affections. The Wassermann reaction is often negative with syphilitic disease of bones and joints. It may be negative

even in the puncture fluid from the diseased joints in known syphilis. The normal synovia, however, allows the passage into the joints of the substances giving the Wassermann reaction and also of stains and of bile pigments in jaundice. The inability to differentiate syphilitic joint disease fully justifies tentative treatment for syphilis in cases of obscure joint disease. The joint fluid findings are tabulated from 100 patients.

Indications for Operative Treatment of Cholecystitis.—Blendermann reports that there were eight deaths in 106 operations for acute cholecystitis, and eighteen deaths in ninety-eight interval operations in Pels Leusden's service in the last four years. He concluded his appeal for early intervention with *Doppelt hilft, wer schnell hilft.*

Lingual Thyroid Tumor.—Rossteuscher adds another case to the 100 on record in which a tumor at the base of the tongue proved to be thyroid tissue. The great danger is that removal of the tumor may deprive the patient of all thyroid tissue. Postoperative myxedema and tetany have been reported in 9 and 22 per cent. of the cases (Asch and Lenzi). In Asch's case the myxedema and tetany gradually improved in time. Only 12 per cent. of the cases of lingual goiter have been found in males.

Pathology of the Thymus.—In this third communication on this subject, Bircher reports experimental research on exophthalmic goiter and on the relations between the thymus and the thyroid. He induced the complete picture of exophthalmic goiter in three dogs by implantation of thymus tissue. Partial results were obtained in three other dogs after implantation of child thymus tissue. These experiences confirm the possibility of thymogenous exophthalmic goiter. He describes further the frequent finding of an enlarged thymus in persons dying from goiter disturbances (not exophthalmic). The diffuse goiter developed in two of the cases after thymectomy.

Self-Healing of Incarcerated Hernia.—The incarcerated hernia had become spontaneously reduced, but persistence of certain symptoms was explained by an intraperitoneal encapsulated fecal abscess, evidently an attempt at spontaneous healing.

Kidney Hemorrhage of Unkown Origin.—Sudden and repeated hemorrhage from the right kidney of a previously healthy woman, aged 64, compelled nephrectomy. But nothing to explain the hemorrhage could be found even with the microscope. In a second case the kidney was merely decapsulated and there has been no further disturbance.

Heredity of Hemophilia.—Lenz urges surgeons to investigate the family tree of every patient who displays a tendency to bleed excessively. Data in regard to hemophilic grandchildren would settle the question whether spermatozoa with the hemophilic taint always die prematurely or not. Instances are being reported now of bleeder women, with both father and son bleeders. The question needs further light, and this the surgeons can provide by search for bleeding grandchildren.

Jahrbuch für Kinderheilkunde, Berlin

102: 321-380 (Aug.) 1923

*Tuberculosis in Children. A. Czerny and H. Eliasberg.—p. 321.
Registration of Heart Sounds in Children. A. Hotz.—p. 337.
Anemia from Goat's Milk. E. Brouwer.—p. 357.

Treatment of Severe Tuberculosis in Children.—Czerny and Eliasberg consider artificial pneumothorax the greatest progress in treatment of pulmonary tuberculosis. This is especially true in children, in whom the process is comparatively frequently unilateral. They maintain the pneumothorax for at least two years. They had tried to influence the cachexia of tuberculous children by daily injections of horse serum. On Uhlenhuth's advice, they tried the serum from animals which had been injected with increasing amounts of tubercle bacilli. Although no antibodies except a weak amboceptor were found in such serums, the results in the children seemed better than with other methods. They injected daily from 0.5 to 2 c.c. of such beef serum. Edema which occurred locally in some of the children could be prevented by diluting the serum with an equal amount of normal sodium chlorid solution.

Medizinische Klinik, Berlin

19: 1279-1318 (Sept. 23-30) 1923

Treatment of Syphilis with Bismuth. J. Citron.—p. 1279.
Tuberculosis in Children. K. Dietl.—p. 1284.
*Multiple Sclerosis. R. Fetscher.—p. 1286.
*Intracutaneous Smallpox Vaccination. A. Singer.—p. 1288.
*Diagnosis of Uterine Cancer. A. Adelheim.—p. 1290. Idem. O. Gerich.—p. 1292.
Bilateral Ureter Cysts. J. J. Stutzin and Bolle.—p. 1294.
Chloramin Disinfection of Sputum. K. W. Jötten.—p. 1297.
Pneumothorax Treatment of Pneumonia. P. Schottky.—p. 1298.
Ovarian Dermoid. B. Lammers.—p. 1298.
Stenosis of Left Auricle. W. H. Chron.—p. 1299.
*Stimulating Action of Salt. A. Hauer.—p. 1300.
Professional Blood Donors. K. Brandenburg.—p. 1301.
Varices and Leg Ulcers. E. Clasen.—p. 1302.
Recent Literature on Hygiene. H. Ziemann.—p. 1306.
Recent Literature on Disease of Heart and Vessels. Edens.—p. 1309.

Multiple Sclerosis.—Fetscher surveys the present status of the etiology of multiple sclerosis. Kohn and Steiner's *Spirochaeta argentinensis* seems to be the probable causal agent. It is not impossible that the disease is transmitted by insects, especially ticks. Prolonged treatment with small doses of silver arsphenamin has given promising results in a few cases, conflicting in others.

Intracutaneous Smallpox Vaccination.—Singer confirms the advantages of Leiner's method of smallpox vaccination. He injected 0.1 c.c. of a 1:40 dilution of smallpox lymph intracutaneously. The reaction is milder than with the usual cutaneous method. Fever is rare and of short duration. There are no scars after this method, which is especially important in girls.

Diagnosis of Uterine Cancer.—Adelheim discusses the characteristic signs of carcinoma in scrapings from the uterus. Great care must be taken in examination of particles from a uterus which had been treated with caustics, because of the subsequent vigorous new formation of epithelium.

Early Diagnosis of Uterine Cancer.—Gerich quotes Winter's statement that physicians are responsible for 21.5 per cent. of the diagnoses of cancer that are made too late. Bleeding after coitus, bleeding after the menopause, and bleeding during urination and defecation are important suspicious symptoms. Increased menstrual flow and hypersecretion are suspicious. He reports several cases in which the microscopic diagnosis of cancer was made, although the clinical and anamnestic findings furnished only a slight suspicion.

Shock Action on the Blood from Hypertonic Saline Solution.—Hauer injected in the morning 10 c.c. of a 10 per cent. solution of sodium chlorid intravenously, and observed the effects on the blood. The lymphocyte count was frequently lowered almost immediately, and increased after a quarter of an hour. In one case, five minutes after the injection, there were four times as many lymphocytes as before, and a little over one half of the original figure later. The neutrophils were almost always changed: younger forms appeared and lasted for several hours. Cachectic patients had only a few younger forms.

Zeitschrift für Urologie, Leipzig

17: 513-592, 1923

Hemorrhage from One Kidney. H. Schranz.—p. 513.
Physiologic Import of Uric Acid. Armbruster.—p. 516.
Etiology of Pyelitis. A. Matusovszky.—p. 517.
*Chronic Contraction of Neck of Bladder. H. Rubritius.—p. 522.
Sources of Error in Roentgenography of Ureter Calculi. H. Hohlweg.—p. 533.
Calculus in Urethral Diverticulum. H. Boeminghaus.—p. 535.
*Surgical Insufficiency of the Kidneys. E. Joseph.—p. 537.
Calculi in the Ureter. A. Zaky.—p. 541.
Casts and Albumin in Urine in Surgical Affections of Kidneys. R. Rinaldi.—p. 561.

Chronic Contraction of Neck of Bladder.—Rubritius reports a case of apparently hereditary hypertonia of the sphincter of the bladder. This condition causes retention of urine in some cases of beginning tabes and after spinal injuries.

Surgical Insufficiency of the Kidneys.—Joseph places more reliance on the anatomic findings in cases of pyonephrosis than on functional tests. If the pelvis and calices of the other kidney, as shown by pyelography, are approximately

normal, he operates even if the indigocarmin test is not satisfactory. On the other hand, elderly patients with hypertrophied prostates may die of uremia after the operation, even when the elimination of the stain had been good.

Zentralblatt für Chirurgie, Leipzig

50: 1433-1464 (Sept. 22) 1923

Resection of Clavicle Improves Function of Shoulder After Arthrodesis. M. Kappis.—p. 1433.
*Experiences with Sympathectomy. H. Kümmell, Jr.—p. 1434.
*Spontaneous Gangrene. M. Jegorov.—p. 1439.
Operative Results of Cryptorchidism. R. Paschen.—p. 1440.
Color and Growth of Hair in Diagnosis of Cancer. Zöllner.—p. 1442.

Fifty-Two Sympathectomies.—Kümmell has performed periarterial sympathectomy forty-four times in thirty-four, and resection of the cervical sympathetic ganglion, in eight cases. The operation was successful in many cases, and in no case proved harmful. Sympathectomy usually entailed a lowering of the blood pressure, a more feeble pulse and a drop in the skin temperature, which after a few hours or a few days were followed by the opposite conditions. The circulation in the capillaries seemed to improve, as was shown by microscopic examinations. Kümmel agrees with Brüning that hyperemia is one of the main factors in the favorable effect of sympathectomy in vasomotor disturbances in the extremities. But that other sympathetic functions take part in the results is shown by remission of pain and also by the remarkable fact that following unilateral sympathectomy an effect on the opposite side was observable in some cases. In trophic ulcer the results were especially satisfactory.

Changes in the Thyroid Gland in "Spontaneous" Gangrene of the Extremities.—Clinical observations and laboratory researches on a series of cases of "spontaneous gangrene" (blood pressure measurements, application of the Eppinger and Hess tests for vagotonia and sympathicotonia, estimation of the epinephrin content of the blood by the Krawkov method) have convinced Jegorov that in the majority of cases no sympathicotonia or epinephrinemia can be proved. Vascular spasms in the arteries of the foot, however, could be distinctly observed in many cases. Jegorov concluded that in most cases there was weakness of the vasodilators (vagus asthenia). To confirm this assumption, he made a biopsy of the thyroid gland. His conjectures were confirmed. The gland cells were found in the form of slender, spindle-like formations. Excess of colloid was found. Jegorov asserts that biopsy of the thyroid is a simple method of examination and that reduced functioning of the thyroid in many forms of "spontaneous gangrene" is established.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1070-1172 (Sept. 15) 1923

*Nature of Diabetes. H. A. Lubbers.—p. 1070.
*Familial Amaurotic Idiocy. G. P. Frets and J. F. A. Overbosch.—p. 1091.
*Peritonitis with Cirrhosis of Liver. F. van Oppen.—p. 1112.

Nature of Diabetes.—Lubbers, a specialist in gastro-intestinal disease, presents evidence that, in certain cases of diabetes, increasing the protein proportion of the food improved the tolerance for carbohydrate. He discusses the reasons for this paradoxic behavior, giving charts from several concrete examples, and reiterates that in every case there is a certain optimal proportion of protein with which the assimilation of carbohydrates proceeds most favorably. This suggests that the carbohydrates are assimilated or rejected according to the group of side-chains which prevails, the carbohydrates or the zymases. The carbohydrates exert an amboceptor function, allowing the zymase opportunity to split the diacetic acid, and thus giving it a chance to fasten on the protoplasm. He explains the cause of diabetes on this basis, and reiterates that disturbance in the functioning of the pancreas is not responsible for all cases of diabetes; other endocrine glands may be involved.

Amaurotic Family Idiocy.—The symptoms developed in the three brothers at the age of 3, and proved fatal in three years in all. The family was not Jewish, and the child born before and the two born since seem to be normal. Seventeen illustrations of the microscopic findings class the cases as of the Spielmeyer-Vogt early juvenile type, with severe pathologic changes in the cerebellum.

Chronic Arsenic Poisoning.—Van Oppen ascribes the remarkable findings at necropsy to the medicine the girl had been taking for asthma for about a year. The clinical course had been that of adhesive peritonitis with chronic partial ileus, bronzing, and cirrhosis of the liver. No signs of the anticipated tuberculosis were found at necropsy.

2: 1293-1384 (Sept. 29) 1923

Eijkman and the New Science of Nutrition. D. J. Hulshoff Pol.—p. 1294.
Development of Sinus Durae Matris. C. van Gelderen.—p. 1300.
Estimation of the Flocculation Reactions. M. van Riemsdijk.—p. 1309.
*Agglutination of Proteus in Paratyphoid. G. Kapsenberg.—p. 1314.
*Disturbance in Circulation in Deafness. W. P. Meyjes.—p. 1320.

Positive Weil-Felix Reaction in Paratyphoid.—Kapsenberg reports a case of paratyphoid B in which extreme agglutination of *Proteus X 19* had misled the diagnosis at first. This possibility of paratyphoid should be borne in mind in applying the Weil-Felix test for typhus.

Treatment of Deafness and Dizziness.—Meyjes quotes Schwerdtfeger's recent success in curing severe symptoms following prolapse of the brain after a cerebral abscess by fitting the man with a prosthesis to correct the prolapse. There was no return of the dizziness, tinnitus, headache, aphasia and nystagmus. This convinced him that these symptoms are due to derangement of the circulation in the region. This assumption was confirmed by pressure on the veins and arteries in the neck in this and other cases. Meyjes expatiates on the importance of this for treatment of these symptoms, and also of certain forms of deafness by means to modify the circulation.

Svenska Läkaresällskapets Handlingar, Stockholm

49: 157-208 (Sept. 30) 1923

*Research on the Vitreous Body. L. Cronstedt.—p. 157.
Place of Origin of the Glaucoma Colored Ring. J. W. Nordenson.—p. 206.

The Bactericidal Property of the Normal Vitreous Body.—Cronstedt found the vitreous body in man, horses, cattle and rabbits an excellent culture medium for certain bacteria, but for others it has a bacteriolytic action, and this can be activated. He explains how this can be done, and how it can be utilized in treatment by direct injection into the vitreous body.

Ugeskrift for Læger, Copenhagen

85: 717-740 (Oct. 11) 1923

Improved Inhalation Apparatus. C. Engelbreth.—p. 717.
*Arsphenamin Treatment of Infants. G. Gelbjerg-Hansen.—p. 720.

Intravenous Arsphenamin Treatment of Young Infants.—Gelbjerg-Hansen states that in the last five years there have been 132 children with congenital syphilis at the Bergh Hospital, and nearly all were given intravenous neo-arsphenamin treatment. The effect was excellent. In the 19 under 4 months of age, the Wassermann reaction became completely negative in 16 and nearly negative in 3. The child that has been treated the longest is now 3 years old, and has been given twenty-nine injections, to a total of 6.7 gm., and is now sturdy and strong. The children seem to develop exceptionally well; possibly from the tonic effect of the arsenic. Nine of the children died within ten days of birth, and 9 have succumbed to intercurrent disease, and one to congenital heart disease. The total mortality was 23 cases, or 17 per cent. His experience indicates that infants can bear arsenicals even better than adults. The dose of 0.075 gm. of neo-arsphenamin under the age of 3 months was increased to 0.09 from 3 to 6 and 0.12 from 6 to 12 months. After the age of 8, the dose was 0.30 and for older children 0.45 gm. There were no mishaps in over 376 injections. A vein at the elbow or neck was generally selected, with the superior sagittal sinus as the last resort.* In their first attempts to use the sinus, partial necrosis of the frontal lobe and purulent meningitis developed in 2 cases but there have been no complications in any of the numerous cases since. The arsenical treatment was supplemented with a course of inunctions in the young infants.